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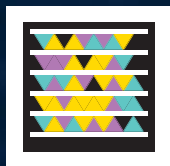
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COVER ILLUSTRATION BY NICK ROTONDO.



Mediterranean Shipping Company has discovered a new form of energy.

Mediterranean Shipping Company (MSC) is the second-largest container ship line in the world, with a database that tracks more than 210 billion transactions a year. The company recently upgraded its database to Microsoft[®] SQL Server[®] 2008, not only to handle this massive load, but also to simplify MSC's database administration and help ensure high availability. Which is like a new form of energy for MSC. See the whole story at **SQLServerEnergy.com**



To get the full MSC story on your phone, snap a picture of this tag. (Requires a free mobile app from <http://gettag.mobi>)





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Could Chrome Be the Next IE?

Google Chrome still has a long way to go, but the browser could soon become a major contender, provided that Google solves a few key issues.

—Brian Reinholz

InstantDoc ID 101084

Securing Hyper-V

Hyper-V introduces some unique security risks that you should address to prevent the host machine and guest OSs from being compromised.

—Mark Burnett

InstantDoc ID 100942

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Submit queries about topics of importance to Windows managers and systems administrators to articles@windowsitpro.com.

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"Arguably the most significant new feature in Server 2008 R2 is Live Migration."

Windows Server 2008 R2's Live Migration

Will Live Migration help Microsoft dislodge VMware from the enterprise?

By some accounts, Microsoft took its share of lumps in 2008: Windows Vista adoption lagged, the Zune still trailed in the mobile audio market, Windows Mobile was overshadowed by the surging popularity of iPhones and BlackBerrys, and cloud computing looks to be another emerging market segment in which Microsoft is playing catch-up to more nimble competitors.

Yet even Microsoft employees have joked that it sometimes takes the software giant three times to get things right, an aphorism that highlights some of Microsoft's greatest strengths: sheer tenacity and a relentless, no-holds-barred approach to improving its products. Lotus and WordPerfect used to snigger at that awkward, new-fangled GUI called Microsoft Windows 1.0. Today, both of those companies are largely footnotes in the pages of computing history, while Microsoft dominates the enterprise computing market.

Such is the case with the Windows Server product line, which has come a long way since the days of Windows NT 3.1. The Windows Server 2008 R2 beta (released in early January 2009) is loaded with features that promise to make the lives of IT pros easier, from Active Directory management improvements in the form of the new Active Directory Administrative Center and the Active Directory Recycle Bin, to other time-saving features such as PowerShell 2.0, PowerShell on Server Core, BranchCaching, and DirectAccess. (Read more about the improvements Server 2008 R2 brings to the table in "A Look at Windows Server 2008 R2 Features," www.windowsitpro.com, InstantDoc ID 101318.)

Live Migration: Microsoft's Answer to VMware VMotion

Arguably the most significant new feature in Server 2008 R2 is Live Migration, Microsoft's long-awaited answer to VMware's VMotion technology. Like VMotion, Live Migration will allow IT pros to move virtual machines (VMs) across servers without having to shut them down and without any performance degradation.

"With the initial release of Windows Server 2008, we came out with a feature called Quick Migration, which could move workloads from one node in a cluster to another in a few seconds," explains Ward Ralston, Microsoft group product manager for Windows Server. "We didn't implement a feature comparable to VMware's VMotion in that release because the nodes in our cluster didn't have the ability to talk to the same shared storage. With R2 we've implemented a new technology called clustered shared volumes—

it's a logical subsystem that sits on top of NTFS. Now [we can move] virtual workloads from one node in the cluster to another ... instantaneously—in milliseconds rather than seconds—and have feature parity with VMware." Ralston stresses that Live Migration will be included in Server 2008 R2 for free, as opposed to VMotion, which VMware sells as a standalone product. (Listen to an audio-cast of our interview with Ralston or read a transcript of the interview at "Ward Ralston Discusses Windows Server 2008 R2," www.windowsitpro.com, InstantDoc ID 101319.)

So can Live Migration help Microsoft woo large enterprise customers away from VMware's proven combination of VMware Infrastructure 3 (VI3) and VMotion? Only time will tell, and VMware—now led by former Microsoft executive Paul Maritz—is determined to keep a few steps ahead of the Microsoft juggernaut and undoubtedly has some new product announcements to make in the coming year. But one thing is certain: If Microsoft doesn't manage to peel a few enterprises out of VMware's orbit with the first iteration of Live Migration, you can bet the software giant will try again. And again. And maybe a few more times after that.

A Return to the Cloud

In IT Pro Perspective, "Cloud Computing" (January 2009, InstantDoc ID 100943), I asked readers to let me know what they thought of cloud computing. I received a number of email messages, phone calls, and letters from readers about the topic—too many to list here. I've taken excerpts from the best letters and compiled them into an online article that reveals the concerns (and expectations) readers have about cloud computing; to read the article, "Readers Speak Out on Cloud Computing," go to www.windowsitpro.com, InstantDoc ID 101320.

As always, we'd love to get your take on where you think the IT industry is headed. Are you looking forward to the release of Server 2008 R2? Are you a VMware shop that might consider switching to Server 2008 R2 because of the new Live Migration feature? Drop me an email with your thoughts, or join our forums, LinkedIn group, or Twitter feeds to contribute to the discussion.



InstantDoc ID 101323

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■ IT Annoyance Fix
■ Real-World Solutions

■ Evangelizing Vista?
■ Cloud Computing

LETTERS@WINDOWSITPRO.COM

Fixing an IT Annoyance

I read Michael Dragone's "Fixing Network Problems" (January 2009, InstantDoc ID 100660) and wanted to address the infamous Microsoft Internet Explorer (IE) problem of not connecting to the Internet when the user invokes a web page. The problem is definitely annoying. To resolve the problem, I reinstalled IE 6.0 (the version I was using at the time). The reinstallation involved going to %systemroot%\inf and locating the ie.inf file. I right-clicked the file and clicked Install. The installation prompted me for the Windows CD's i386 folder; I copy mine locally each time I build a machine, so I had it immediately available. After the installation and reboot, I didn't experience any *Internet Explorer cannot open the Internet site <web address> messages*. Give this fix a shot; it might fix your IT annoyance.

—David Lawrence

Real-World Solutions

Michael Morales's What Would Microsoft Support Do? columns are exceptional. He presents real-world, practical solutions to problems I face every day. I recently experienced two problems that he covered in recent columns: one involving Windows Management Instrumentation (WMI) that a Microsoft patch resolved, and one involving a memory leak that caused physical and virtual memory to max out. "Resolve Memory Leaks Faster" (InstantDoc ID 99933) was a tremendous help with the second problem. I now go directly to this column when my issue of *Windows IT Pro* arrives.

—Todd Lester

Thanks for sharing your appreciation for my column! All of us in Escalation Services at Microsoft share a strong passion to help people



solve their problems and avoid the dreaded support call. However, in the real world, a support call is often inevitable, so one of our goals is to arm you with the right data that makes the experience short and sweet! It's great to hear that the column is hitting home. Feel free to send me any suggestions for future articles!

—Michael Morales

Evangelizing Vista?

Is Mark Minasi still evangelizing Windows Vista for businesses even after corporate IT has soundly rejected it? Not one of his "10 Reasons to Deploy Windows Vista" (November 2008, InstantDoc ID 99986) is a business driver. These reasons make much more sense for consumers than for businesses.

—Barry Hohstadt

Thanks for reading, Barry. When the magazine asked me to contribute to its "point/counter-point" article about deploying Vista, I knew the editors would have trouble finding someone to cover the "pro-Vista" side, so I chose to write it. I must object to your statement that corporate



IT has rejected Vista. I've been extremely busy over the past two years working with clients adopting Vista. Regarding my article's list of 10 items, you can accomplish most of those functionalities with Windows XP SP3 only by adding a bunch of costly third-party software, so I think that at least a look at Vista—which bundles a lot of useful stuff—is warranted.

—Mark Minasi
InstantDoc ID 101293

Cloud Computing: Storm Brewing

In his "Cloud Computing" editorial (January 2009, InstantDoc ID 100943), Jeff James asks for reader opinions about the debate. Everything I've read about cloud computing supports my view that it's simply the latest iteration of plain old mainframe computing. This isn't the first time people have declared the end of the desktop/client-server model. Remember the noise a few years ago about thin clients?

The marketing argument that businesses should outsource their cloud sounds nutty to me and many others. Clouds need to stay in house. IT is core business. The idea of giving up custody of your data, your customer lists, product design files, and so on isn't going to appeal to many people. Would you outsource your financial planning or middle management? Would GM give up its design groups or assembly plants to a third party that says, "Trust me"? If there's a place for cloud computing, it's more wisely limited to single office organizations, particularly for web-based applications.

Nobody is talking about the impact on the WAN of this centralized processing. My agency has about 5,000 users. We have 800 in the central office and about 175 at a number of regional offices. Everyone else is at a location that has from 2 to 40 users. Eighty percent of us are on the WAN. We have Fibre Channel links (that we own) to a few of the closer units. Everyone else uses a T1, Multiprotocol Label Switching, DSL, or cable. Some people are still on dial-up because their remote rural site has no other option.

With so many sites, one of them is down virtually every day. With cloud computing, that site would be out of business for the duration, whether 30 minutes or three days. When I started in IT, we had three VAX terminals sharing a 1200-baud phone line to the mainframe. Never again.

—Tom Doran

Windows IT Pro welcomes feedback about the magazine. Send comments to letters@windowsitpro.com, and include your full name, email address, and daytime phone number. We edit all letters and replies for style, length, and clarity.

ONLINE

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Build a Secure and Compliant Windows Desktop

Organizations are being compelled to improve client security—auditors, regulators, and business-unit owners recognize the threat unsecured desktops pose and the need to comply with current regulations. The challenge is to maintain user productivity in the process. Simply removing administrator rights from end users may be the Holy Grail of desktop security, but doing so can have an impact on the everyday activities of end users trying to do their jobs. Register now for this important event and learn how to implement the client security your organization needs.

windowsitpro.com/go/SecureDesktop

Maximize Your SharePoint Investment

In this web seminar, we'll take a look at the complex business of securing, accessing, and managing vast amounts of information in a global network. With true bidirectional replication of SharePoint content from one server to another, you can enable branch offices and remote sites with challenged network connections to maintain immediate access to current SharePoint content even in failover scenarios.

windowsitpro.com/go/Maximize_SharePoint

Are You Ready to Deploy SQL Server 2008?

With a migration to SQL Server 2008, there is the risk that the server will not perform well at deployment. This essential guide explains how analyzing your disk, memory, and processor requirements can help you develop a migration plan that will make your deployment an immediate success. Download this essential guide to learn what you need to do before implementing SQL Server 2008.

windowsitpro.com/go/SQLReady

Humphries

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Stay off the Security Snafus List

Seal up security cracks with resources from
Windows IT Pro

In his January 2009 web-exclusive article "Top Ten Infosec 'Oops!' of 2008" (InstantDoc ID 101205), Tony Howlett lists the biggest screw-ups of last year. While I mocked accordingly the Spores amoeba's evolution dissolution and the Zune's Christmas-time crash, I couldn't find fun in the folly of 11,348,196 compromised private records—in 687 separate incidents.

Tony asks, "Is it wishful thinking to hope it will be better in 2009?" I say that wishes can come true. To keep you off of his naughty list for 2009, I've made a list of my own. Check out these must-see security resources, and seal up the cracks in your organization before it's too late!

- **"A 5-Step Security Plan"** (InstantDoc ID 101128). With the matter-of-fact tagline "It can't happen here" is no excuse," this web-exclusive article summarizes a security seminar's advice into an easy-to-follow plan for your organization.
- **"Ease Security Headaches"** (InstantDoc ID 100724). Russell Smith reviews common security aggravations and offers suggestions for how to handle them.
- **"Lumension Survey Notes Top Threats"** (InstantDoc ID 101077). Find out the top security concerns from a recently posted trends survey and read more about the survey results with picks from security editor Lavon Peters.
- **"Top Ten Net-Surfing Risks at Work"** (InstantDoc ID 100622). Tony Howlett warns of the most dangerous Internet activities for the workplace and gives me at least four things to feel guilty about.
- **Vista Security, Parts 1 and 2** (windowsitpro.com/go/ITTV/VistaSecurityPart1 and windowsitpro.com/go/ITTV/VistaSecurityPart2).

February Web Offerings You'll Admire

- Tips to secure Hyper-V (InstantDoc ID 100942)
- Learn how to clear the Outlook list of recently accessed folders of other users, plus find out what happens when a cached mode client limits the .ost file to a size smaller than the mailbox size (InstantDoc IDs 101095 and 101096)
- Explore how Active Directory security group memberships are replicated, how to change the default location for new user and computer accounts, and information about remote network ports (InstantDoc IDs 101227, 101228, 101229)
- Does SafeHTML really make viewing HTML documents safe? (InstantDoc ID 101245)

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Windows Vista has been touted as Microsoft's most secure OS ever. Karen Forster interviews Microsoft product managers about Vista's built-in security features.

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To view more security articles, see the Security topic page at windowsitpro.com/windowssecurity.

InstantDoc ID 101213



"Server 2008 R2 breaks all the R2 rules.
And that's OK with me."

Windows Server 2008 R2 Beta

A more compelling update than originally anticipated also prompts some questions

In late 2009, Microsoft will ship Windows Server 2008 R2. As a follow-up to Windows Server 2008, Server 2008 R2 shares much, technologically, with its predecessor. However, unlike most R2 releases, Server 2008 R2 is not only a more compelling update than what was originally anticipated but also prompts some questions. Here's what you need to know about Windows Server 2008 R2 Beta.

Not Your Average R2

Microsoft instituted its R2 naming scheme—and the resulting major-minor release cadence for Windows Server—with Windows Server 2003 R2. That release was intended to set the stage for future R2 versions, but many of its most impressive intended features were in fact delayed until Windows Server 2008. Ironically, with Server 2008 R2, Microsoft is packing in so many features that it risks alienating some customers.

The problem is that R2 releases aren't supposed to break the application and driver compatibility models set by their major-release predecessors. And with Windows Server 2008 R2, Microsoft is attempting to do something it hasn't done since Windows 2000: Develop major releases of its Windows client and server products side by side. Doing so offers certain "better together" advantages. But it also breaks compatibility because the kernel and other low-level

OS code must be aligned for both releases. The result is that Server 2008 R2 is, in many ways, a fairly major upgrade to Microsoft's server OS.

One of the missions of R2 releases in general is to supply up-to-the-minute support for next-generation technologies. So it stands to reason that those customers who would be interested in the many new Server 2008 R2 technologies are most likely OK with a compatibility break this time around. And many of them will likely be interested in R2's client stablemate, Windows 7, as well. Rightly so: Windows Server 2008 R2 is Windows 7 Server.

With Server
2008 R2,
Microsoft is
packing in
so many
features that
it risks
alienating
some
customers.

Notable New Features

Windows Server 2008 R2 brings numerous new features to the Windows Server product line. Here are some of the more notable.

Hyper-V 2.0 with Live Migration capabilities. Server 2008 R2 includes the second-generation version of Microsoft's Hyper-V virtualization platform, which brings the long-awaited Live Migration functionality. In Server 2008, it was possible to migrate virtual machines (VMs) from host to host with just a little downtime; now, as long as you have failover clustering, VM migration will be nearly instantaneous and will result in no downtime for users.

Remote Desktop Services (next-generation Terminal Services). At one time, Microsoft believed that most of the functionality in its Terminal Services (TS) technologies would be subsumed by its Hyper-V virtualization efforts, but the company now realizes that customers prefer a choice when it comes to virtualization. With Server 2008, the software giant began referring to TS as "presentation virtualization" to put it in line with its other virtualization solutions. In R2, these technologies are expanded and renamed Remote Desktop Services (RDS).

Some of the changes in RDS are simply branding. TS RemoteApp becomes RemoteApp. TS Gateway becomes Remote Desktop Gateway. TS Session Broker is now Remote Desktop Connection Broker. TS Easy Print is Remote Desktop Easy Print. And TS Web Access becomes Desktop Web Access. New to R2 is Desktop Connections, which integrates RemoteApp applications into the user's Start menu for a truly integrated experience. This feature requires Windows 7 on the client. The low-level Remote Desktop protocols have also been improved in R2 with such features as true multimonitor support, multimedia redirection, audio input and recording, Aero Glass support, DirectX redirection, and language bar redirection.

Server Manager. Microsoft's all-in-one admin tool is finally being updated. It will support remote server management.

Windows PowerShell 2.0. Although Server 2008 included the initial release of the PowerShell command-line and scripting environment, it was almost a science experiment: Administrators were expected to roll their own PowerShell administrative scripts or find them online. Server 2008 R2 begins the long march to a PowerShell-based administrative-tools future. R2 includes PowerShell 2.0 as well as dozens of pre-made administrative cmdlets. Additionally, far more of the OS, including RDS, is now scriptable in PowerShell. And PowerShell 2.0 lets you run scripts on multiple remote computers if necessary.

Active Directory Administrative Center. The first major PowerShell-based admin console to appear in Windows Server, Active

Directory Administrative Center is a task-based UI built entirely on cmdlets, similar to the Exchange Server 2007 admin console. It offers a three-pane view similar to Microsoft Management Console with common Active Directory (AD) administrative tasks on the left, tasks on the right, and the currently selected tool in the middle. Customers can expect more Windows admin tools to “go PowerShell” in the future, modeled after the AD Administrative Center.

.NET and ASP.NET in Server Core. Server Core has proven to be one of the most well-regarded features of Server 2008, but customers asked for a few additional roles, one of which, the Microsoft Internet Information Services (IIS) web server, was only partially implemented in that release. For R2, a subset of the .NET Framework has been added to Server Core, and with it comes support for the full IIS web server experience, including ASP.NET. In R2, Server Core can also run PowerShell scripts for the first time.

Integrated IIS extensions. Server 2008 supports the notion of extensions for IIS.

But extensions are hard to find—they’re available only on the web, and many admins don’t know they exist.

Massive scalability with better multicore support. Server 2008 R2 will support up to 256 logical processor cores, a huge improvement over its predecessor’s support for 64 cores. Further, Hyper-V-based VMs can now address up to 32 logical processors per VM.

Server 2008 R2 Features That Require Windows 7

Server 2008 R2 also includes features that work with Windows 7 on the client. None of them are as fundamental and game-changing as were AD and Group Policy in Windows 2000, but the resulting streamlined, more easily administered environment could, I feel, cause many enterprises to pull the trigger on Windows 7 as well.

DirectAccess. DirectAccess is similar to the HTTPS-based Microsoft Outlook Web Access gateway to Exchange and provides a simple way to let external users use your intranet without setting up an expensive and complex

VPN. From the user’s perspective, network access is transparent and works as if the user is physically connected to the network. (For customers who stick with VPNs, R2 includes a VPN Reconnect feature, which automatically reconnects users to disconnected VPNs.)

BranchCache. Aimed at branch offices, BranchCache caches network traffic between the home office and the branch. If a user at the branch requests information that has already been accessed over the WAN, that user will receive the local, cached copy instead.

BitLocker to Go. The BitLocker Drive Encryption feature from Windows Vista and Server 2008 provided a way to encrypt full disks, but these disks had to be directly connected to the system via conventional ATA or Serial ATA (SATA) connections. R2 supports removable USB and external SATA storage via a new BitLocker To Go feature. This feature still requires specific Trusted Platform Module (TPM) hardware support.

Power management. Because both Server 2008 R2 and Windows 7 can natively monitor and autoconfigure power management at a

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far more granular level than their predecessors, power management features have been added as a server admin function. These features are implemented through a collection of new Group Policy Objects (GPOs).

Desktop Connections. As I discussed earlier, Desktop Connections integrates with RemoteApp to allow RDS-based applications to appear in the user's Start menu and thus behave like native applications.

64-Bit Installation

Although Server 2008 R2's system requirements are similar to those for Server 2008, Microsoft had previously announced that R2 would be made available only in 64-bit editions. Because new server hardware is 64-bit these days, R2's 64-bit-only architecture won't be a problem for new installations. But it might cause problems with upgrades: Microsoft doesn't support in-place upgrades from 32-bit Windows to 64-bit. Organizations running 32-bit versions of Server 2008 will need to perform clean installations of R2. Those with 64-bit versions can upgrade in place.

Because Server 2008 R2 breaks compatibility with its predecessor, it's not the simple proposition that Windows 2003 R2 was.

Timing and Availability

A beta version of Server 2008 R2 is now available, and you should use that feature-complete version of the product to evaluate when to begin rolling out this system. According to Microsoft, Server 2008 R2 will ship at roughly the same time as Windows 7, which puts the new OS's release to manufacturing date some time in late 2009. Licensing will be identical to Windows 2003, and Software Assurance customers will get Server 2008 R2 as part of their ongoing subscriptions.

It's OK to Break the R2 Rules

Because Server 2008 R2 breaks compatibility with its predecessor, it's not the simple

proposition that Windows 2003 R2 was. That said, it's hard to imagine the market not being excited about some of R2's new functionality, and those who opt to roll out R2 and Windows 7 simultaneously—an unlikely scenario, I know—will see even more benefit. Server 2008 R2 breaks all the R2 rules. And that's OK with me. Whether it is for you will depend, of course, on your needs.

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"I miss boot.ini's simplicity, but BCD and Bcdedit are here to stay."

Bcdedit Basics

Control your Windows Server 2008 and Windows Vista boot options

Anyone who uses Windows Server 2008 or Windows Vista knows that these latest Windows versions have brought some significant changes to Microsoft's OSs. One of these changes is the way you control Windows' boot loader, the software that supports storing more than one OS on a drive and that lets you configure the way Windows boots. With this change comes a new tool—Bcdedit—that anyone who administers Server 2008 or Vista systems must master.

Prior to Vista, we controlled boot order and boot options by modifying the boot.ini text file at the root of the C drive. To change the boot-loader behavior of pre-Vista systems, we needed nothing more complex than Notepad and the knowledge of how to un-set boot.ini's "read only" component. Now, Microsoft has replaced boot.ini with a binary file called BCD, which resides in a hidden system folder called \boot on whatever drive you boot your system from. Bcdedit is the tool you'll use to control BCD.

Boot Alterations

The BCD boot-loader structure introduces some new terminology. Whereas a boot.ini file might have several sections that let you boot a particular OS with specific options, Bcdedit has *boot entries*. A new Server 2008 or Vista installation has just one boot entry, but if you add an OS—for example, if you install both Server 2008 and Vista on the same system, or if you have only one OS on your system but want the option to boot that OS with different startup or debugging settings—you'd have more than one boot entry. You can see your boot entries by opening an elevated command prompt and typing

```
bcdedit /v
```

The top section of the output that Web Figure 1 (www.windowsitpro.com, InstantDoc ID 101168) shows—labeled Windows Boot Manager—contains global information: which boot entry boots by default, how long users have to choose a non-default boot entry, and so on. Below that, Bcdedit displays two boot entries labeled Windows Boot Loader. The first boots a copy of Server 2008 (as you can see in the description line), and the second boots Vista.

Notice that Bcdedit /v shows a lot of long hexadecimal strings enclosed in brackets—you probably recognize these as globally unique identifiers (GUIDs). You can safely ignore most of these GUIDs, but pay special attention to the first one in each boot entry, labeled *identifier*. You need these GUIDs when you inform Bcdedit which boot entry to make the default, in what order to display the boot entries, which boot

entries to copy, and so on. If you're like me, you'll find yourself feeling thankful that you can mark text and put it into the clipboard.

To tell BCD which boot entry to load by default, you use the Bcdedit /default command. For example, to tell my system to boot the Server 2008 boot entry, I would type

```
bcdedit /default {6443870f-3c0c-11dd-835a-c0389998b4ec}
```

If you can't imagine typing or even copying those GUIDs, you'll be glad to know that Bcdedit recognizes two well-known GUIDs: The *{current}* value is the boot entry that the OS is currently running, and the *{default}* value is whatever boot entry BCD currently knows about.

If I were to delete the \Windows folder from the Server 2008 installation on my system's E drive, I would essentially uninstall Server 2008 from my system. But BCD wouldn't know that, so every time I booted my system, I'd see a useless option to boot Server 2008. To configure BCD to no longer show the Server 2008 option, I'd use

```
bcdedit /delete {6443870f-3c0c-11dd-835a-c0389998b4ec}
```

If you're thinking about trying some of these commands, I recommend creating an extra boot entry to play with. Believe me, you don't want to accidentally delete your main OS's boot entry! To copy your boot entry for test purposes, you can use the command

```
bcdedit /copy {current} /d "Test entry"
```

Note that I've added the mandatory switch /d, which lets me add a name for the new OS boot entry.

Whenever I set up a Windows NT 3.1 or later system, I find boot.ini's default 30-second wait to be excessive, unacceptably slowing down my boot times. So, I always like to modify the "timeout=30" value to 5 seconds. To do the equivalent in Bcdedit, I type

```
bcdedit /timeout 5
```

Familiarize Yourself

I miss boot.ini's simplicity, but BCD and Bcdedit are here to stay, so I recommend spending a little time getting familiar with Bcdedit. I'll cover more in-depth options next time.



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"It seems like SharePoint sites are popping up faster than hair on a time-lapsed Chia Pet."

SharePoint FAQs

These Q&As explain the basics of SharePoint and how you might use it

Microsoft SharePoint is one of the fastest growing IT technologies today. It seems like SharePoint sites are popping up faster than hair on a time-lapsed Chia Pet. But not everyone is on the SharePoint bandwagon. If you've held back because you aren't quite sure what SharePoint is and how you might use it, this column answers some of your questions.

- 1 What is SharePoint?**—Both Windows SharePoint Services (WSS) 3.0 and Microsoft Office SharePoint Server (MOSS) 2007 enable online document sharing and collaboration. WSS 3.0 is a free download from Microsoft's website and MOSS 2007 is a licensed server product.
- 2 What's the difference between the two?**—Both products include blogs, wikis, shared calendars, and document sharing, but MOSS provides additional enterprise-oriented features, including Enterprise Portal site templates, a My Site personal site for individual users, RSS content syndication, and mobile-device support. A detailed list of the differences is at office.microsoft.com/en-us/products/fx101758691033.aspx.
- 3 What are the WSS 3.0 requirements?**—The recommended system requirements for WSS 3.0 are a 2.5GHz CPU, 1GB of RAM, and 3GB of free disk storage. WSS runs on Windows Server 2003 with SP1 or higher. Windows 2003 systems must run Microsoft Internet Information Services (IIS) 6.0 or later; Windows Server 2008 requires IIS 7.0. WSS also requires .NET Framework 3.0 or later. Administration requires Microsoft Internet Explorer 6.0 or later with the latest service pack.
- 4 Do I need Microsoft SQL Server to use SharePoint?**—You do, but SharePoint installs what it calls Windows Internal Database—actually SQL Server 2005 Express—which is free. SharePoint also works with SQL Server 2000 SP4, SQL Server 2005 SP2, and SQL Server 2008. (Using SQL Server 2008 requires WSS 3.0 SP1.)
- 5 What types of documents does SharePoint allow collaboration on?**—SharePoint lets you collaborate with all the common document formats in the Microsoft Office suite, including Word, Excel, and PowerPoint. SharePoint also supports collaboration through wikis, blogs, shared calendars, and tasks.
- 6 Why should I use SharePoint instead of a file share?**—SharePoint supports document version control, which lets users check out documents for modification, then check them back in. Users can see the status of documents and who has them checked out and can receive notification when a document is changed. SharePoint also saves each version of each document, making it possible to restore a document to a previous state.
- 7 Do I have to program in .NET to develop SharePoint sites?**—No. SharePoint itself is actually an ASP.NET application, but neither WSS nor MOSS requires any programming to create and manage sites. However, developers can enhance the functionality of SharePoint with Web Parts, which are essentially ASP.NET custom controls.
- 8 Where do I find SharePoint?** You can download both the 32-bit and 64-bit versions of WSS 3.0 from technet.microsoft.com/en-us/windowsserver/sharepoint/bb400747.aspx. WSS 3.0 SP1 is at www.microsoft.com/downloads/details.aspx?familyid=4191a531-a2e9-45e4-b71e-5b0b17108bd2. You can download a trial version of MOSS 2007 from www.microsoft.com/downloads/details.aspx?familyid=2e6e5a9c-ebf6-4f7f-8467-f4de6bd6b831.
- 9 How do I get started building WSS sites?**—You can build basic sites from scratch by using built-in menu options. However, one of the best ways to get up to speed quickly is to use Microsoft's WSS application templates, which give you a variety of prebuilt sites as well as showing you some of the things you can do with WSS. There are about 40 templates you can download at technet.microsoft.com/en-us/windowsserver/sharepoint/bb407286.aspx. These templates can also be used with MOSS.
- 10 What's a good resource for learning more about SharePoint?**—One of the best SharePoint resources is *Windows IT Pro's* own Office & SharePoint Pro website. The Office & SharePoint Pro site has a plethora of technical articles as well as blogs, forums, and videos. You can find it at www.officesharepointpro.com. 

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"You should regularly collect baseline performance data on your most essential servers."



Get a Handle on Windows Performance Analysis

Use free tools to collect and easily analyze Performance Monitor data

As an administrator, you probably know firsthand that manually analyzing Performance Monitor logs is a time-consuming process. I'll tell you about some tools that Microsoft support uses for system performance analysis—tools that can help you more easily and effectively analyze your systems' performance and troubleshoot performance problems. Each of these tools performs one of the two main performance-analysis tasks: data collection or data analysis.

Data-Collection Tools

Performance Monitor Wizard (perfwmz.exe) simplifies the process of gathering Performance Monitor logs on Windows Server 2003, Windows XP (x86 only), and Windows 2000 systems by configuring the correct counters to collect and suggesting the most appropriate sample intervals and log-file sizes. You can download Performance Monitor Wizard at www.microsoft.com/downloads/details.aspx?familyid=31fccd98-c3a1-4644-9622-faa046d69214.

Logman.exe is a built-in Windows command-line tool that manages and schedules performance counter collections on local and remote systems and runs on Windows Server 2008, Windows Vista (x86 and x64), Windows 2003, and XP. You can find information about Logman syntax and examples of usage at technet.microsoft.com/en-us/library/cc755366.aspx.

Here's an example of how you'd use logman.exe from the command line to generate a Performance Monitor log called High-CPU-Perf-Log and configure it to capture data at 5-second intervals:

```
Logman.exe create counter High-CPU-
Perf-Log -f bincirc -v mmddhhmm
-max 250 -c "\\LogicalDisk(*)\\*"
"\\Memory\\*" "\\Network Interface(*)\\*"
"\\Paging File(*)\\*"
"\\PhysicalDisk(*)\\*" "\\Process(*)\\*"
"\\Redirector\\*" "\\Server\\*"
"\\System\\*" "\\Thread(*)\\*"
-si 00:00:05
```

(Be sure to type the entire command all on one line without the line breaks shown in the example above.)

Executing the logman.exe command generates a .blg file. To view this file, open

Performance Monitor and navigate to the Data Collector Sets folder, as Figure 1 shows.

I recommend you reboot your server before starting a Performance Monitor log and let the log run from reboot until the condition you're tracking (e.g., system hang, sluggishness) occurs. Letting the Performance Monitor log collect data until the problem recurs ensures that the log captures all relevant data about your problem. Gathering as much data as possible in the log will improve the reliability of the analysis. Rebooting first, then starting the Performance Monitor log helps you identify trouble spots because you can see the resource consumption (memory, CPU, and disk) from the beginning, when things are presumably running normally, all the way through the problem period.

You should collect baseline performance data regularly on your most essential servers. Doing so could help you prove or disprove that a problem exists. Although Microsoft provides performance guidelines, it's difficult to know what's typical for your environment unless you have baseline data. Certain performance statistics can be falsely blamed as the culprit responsible for a new problem, but having a baseline of data that was collected before a new problem occurs will help keep the focus off irrelevant statistics. (You can find guidelines for gathering baseline data at technet.microsoft.com/en-us/library/cc781394.aspx.)

Data Analysis

A tool that Microsoft support relies on to analyze Performance Monitor logs is the Performance Analysis of Logs (PAL) Tool, available at www.codeplex.com/pal. PAL lets you easily analyze

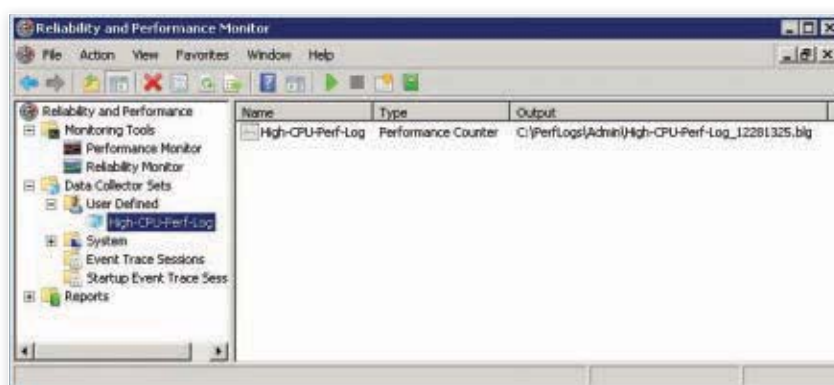


Figure 1: Viewing the .blg file generated by logman.exe

■ WHAT WOULD MICROSOFT SUPPORT DO?



Figure 2: Sample PAL analysis report showing Handle Leak alerts



Figure 3: Handle Leak Detection alert explanation

Performance Monitor logs without requiring you to be an expert in performance counters or Windows architecture.

PAL contains a wizard-based UI that asks specific information about the system, which PAL passes as arguments to a VBScript program. PAL picks up where other log analyzers leave off, such as taking into account whether the system is 64-bit or 32-bit, whether the /3GB switch is used, and how much physical memory is installed—all variables that affect system performance. PAL uses these variables along with known thresholds, which were determined by engineers with years of experience, to analyze the log data. PAL provides a chronological order of alerts, so that you can correlate your system's performance to any problems that you noticed at specific times.

PAL also can provide application-specific analysis for applications such as Microsoft BizTalk Server, Microsoft Exchange Server, and others. So as an administrator wearing several hats, you can have application-specific performance data analyzed without being an expert in an application's performance counters. PAL can make your life easier by providing analysis for baseline data when performance is typical or to help pinpoint the root cause of a performance

problem when one occurs.

PAL's user-friendly UI walks you through the few steps necessary to start the analysis process. The analysis report that PAL generates is an .html file that's stored by default under the \My Documents\PAL Reports folder. The report contains hyperlinks and graphs that enable easy interpretation and navigation, and the file's portability lets you easily store it in a convenient location.

Using PAL

An example of where PAL saved the day came when a customer received a Microsoft Operations Manager (MOM) alert that detected that all BizTalk services had gone offline on one of the customer's BizTalk servers. Remotely connecting to the server wasn't possible. However, since the server was in a cluster, the event logs were replicated, revealing the following error at the time the BizTalk server went offline:

Event Type: Error
Event Source: Srv
Event Category: None
Event ID: 2019
Description: The server was unable to allocate from the system non-paged pool because the pool was empty.

The error explained why remote connections to the server weren't possible but didn't explain the problem's root cause.

The customer solved the immediate problem by rebooting the server, which then resumed participating in BizTalk transactions. But we needed to understand what caused the failure. To do so, our first step after the reboot was to capture a Performance Monitor log. Then we copied the .blg file to our workstation for analysis and loaded the file into the PAL wizard to generate an analysis report. Using the previously mentioned event log error, we scrolled down to view the alerts in the report's memory section and noticed 31 Handle Leak Detection alerts, as Figure 2 shows.

Clicking the Handle Leak Detection hyperlink displayed an easy-to-read graph, which revealed that more than 340,000 handles were consumed by a single process. Additionally, we clicked the Chronological Order link near the top of the report (not shown in Figure 2), which displayed the explanation of the alert shown in Figure 3. When we checked with the vendor for updates, we found one that the customer had not applied. After the update was applied, the problem was solved. The process that PAL alerted us to turned out to be the problem with this particular server. Bingo! No more leaking handles, and no more alerts from MOM indicating that BizTalk processes were offline.

Performance Analysis Insight

These tools and the guidance I've provided for using them should give you some insight into managing the process of system-performance analysis. This knowledge can help you better understand how your systems typically perform and, if you do encounter a performance problem, help you to resolve it by employing tools that are both free and easy to use.

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Top IT SURVIVAL Tips



in a **DOWN** Economy

By David Chernicoff

When corporate finances get tight, IT execs must find ways to provide improved efficiency and more effective service delivery with their existing resources. Tools that allow IT to deliver this improved efficiency move from the “nice-to-have” to the “must-have” category. While staffing might be reduced and hiring curtailed, IT tasks don’t get reduced, and quite often continue to grow, even during an economic slowdown. Here are our top tips for addressing the needs of IT in a down economy.

1

Minimize or eliminate manual processes

While there are always tasks that will require hands-on IT intervention, take a step back and examine which of your processes are suitable candidates for automation. Any multi-step task that requires direct IT intervention is a good candidate, while your prime candidates are those tasks that are repetitive. Basic tasks such as account creation, password changes, distribution list management, and access control changes all lend themselves to automation with the right tool. Such tasks can take up a surprising amount of IT time, even though the individual tasks are considered simple and easy to do. When you add up the amount of time IT staff spends on these “simple” tasks the value of automating them becomes apparent.

2

Give end-users the ability to help themselves

Delegating responsibilities through self-service can move common tasks off of the plate of the IT staff. Allowing departments such as HR to provision or de-provision users based on IT policy means that this becomes part of the standard HR task list for the hiring or exit process, removing the IT staff as a potential bottleneck in the HR processes. Making tasks like password management or Exchange distribution list management the responsibility of designated users within individual business departments enables those departments to make changes when they need them and takes IT out of the day-to-day loop for these simple, common, tasks.

3

Automate and delegate policy management and delivery

Using a granular, roles-based administration strategy means that common tasks can be pushed down to the appropriate level, allowing low-level IT staff, business managers, or even end-users to handle rote administrative tasks that would otherwise require expensive and limited IT resources. Good tools that allow simple, Web-based administration make this type of task assignment possible for IT as the tool user is shielded from the complexities of the task that would otherwise require specific IT skills to complete.

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4

Allow flexible service delivery

Cloud computing techniques have begun to establish their place in day-to-day business operations. With reliable and effective on-premises provisioning and access management controls for these types of applications, IT can smoothly integrate these technologies with their existing business workflow processes. The right tool is critical to making this possible and allows the IT department to deliver exactly the right combination of services to the end user.

5

Simplify and perform regular Active Directory maintenance

Cleaning up the Active Directory is a regular maintenance task required of IT organizations. Unfortunately, it is one that rarely gets performed often enough, and when IT gets around to it—usually on a quarterly basis—the directory is chock full of orphaned accounts, outdated access rights controls, and unexpected security problems. Trying to handle this AD maintenance nightmare, either manually, or with custom scripted solutions without full audit trails, tends to be a complex and time-consuming task. Often it's one that's not completely successful, leaving potential security holes and AD issues that need to be addressed eventually. Having tools to implement IT policies and automate their execution means that the primary culprits—which are the artifacts of changes made to the AD manually that are not fully addressed—are significantly reduced if not completely eliminated. This makes for a more streamlined directory and a reduction in potential security issues.

6

Get control of your Active Directory

Securing, monitoring, and auditing access to your Active Directory can prevent unplanned changes from wreaking havoc throughout the directory. IT is well aware that making the wrong choices or accidental changes in the directory can cause all sorts of issues, the worst of which prevent users from actually getting their work done. This sort of unplanned downtime is unacceptable in today's business environment and as the tools are there for IT to prevent, or at least minimize the potential for this type of problem to occur, choosing not to implement this type of protection makes no sense.

7

Integrate your mobile users

Make sure that you have the tools in place to tightly integrate your mobile users and devices, be they Blackberry or Windows Mobile. You need to be able to provision these users for your enterprise, lock down or remote wipe these devices, update and password protect them, all with minimal end-user interaction.

8

Better utilize your existing resource

This tip is the main reason for your strategy. Tools and technology constantly change, and while you may consider your corporate computing environment to be an effective and stable one, the advances in management technologies can allow you to get a better understanding and more detailed control of the computing environment. Additional information and tools that have the ability to utilize that information can give you the opportunity to fine-tune even effective IT processes to allow those IT resources to be focused on new business issues.

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Create PDF Files with PrimoPDF

I'm a fan of free utilities, so I found ActivePDF's PrimoPDF to be very cool. It lets you create PDF files from more than 300 types of files, including text files, graphics files (e.g., .bmp, .jpg, .tif), and Microsoft Office files (e.g., .doc, .ppt, .xls). It runs on Windows Vista, Windows XP, Windows 2000 Professional, Windows 98, and Windows NT.

To get PrimoPDF, go to the PrimoPDF website (www.primopdf.com) and click the download link. No registration is required. The website downloads the utility from CNET Download.com, so PrimoPDF has been checked for malicious programs.

To install PrimoPDF, launch the installer, accept the licensing agreement, and click Next when prompted. If you don't already have .NET Framework 2.0, you'll need to install it from the Microsoft Download Center (www.microsoft.com/downloads) or let the PrimoPDF installer download it for you.

PrimoPDF installs as a printer on your computer, so when you want to create a PDF file, you just select PrimoPDF as your printer. In the dialog box that appears, you'll have a choice of five settings for the PDF file: Screen (optimized for onscreen viewing), Print (optimized for printing), eBook (optimized for the web), Prepress (optimized for high-quality printing), and Custom (you provide the settings). After you enter a filename and browse to the location where you want to save the file, click Save, then Create PDF.

PrimoPDF offers a few other features you can use when you're creating a PDF file, such as the ability to secure PDF files with passwords and add document information (e.g., title, keywords). You can also combine PDF files after they're generated.

I recommend PrimoPDF to anyone who wants a free solution for creating PDF files. It's as simple as a printer and has some nice features.

—Serge Bedard, technology architecture

specialist, CSST Quebec

InstantDoc ID 101217

■ PrimoPDF ■ Drive Letters

■ Mega-Sized Files

READER TO READER

How to Determine the Next Available Drive Letter When Z Is Already Mapped

I teach a course on VBScript essentials for systems administrators. When we were talking about how to detect the next available drive letter in a script that maps network drives, many administrators pointed out that the script presented in the course's textbook was problematic because it assumed that administrators always map network drive letters in alphabetical order. The script iterated through the used drive letters in alphabetical order until it found the last used letter, then returned the next available letter. As a result, if you had previously mapped a drive to the letter Z, for instance, the script informs you that there are no available drive letters even if there are because Z is the last letter in the English alphabet.

I wanted to find a VBScript solution that wouldn't assume users' behavior and would always return a drive letter if one was available. I first searched the Internet. The only script I found was discussed in the Microsoft article "Hey, Scripting Guy: How Can I Determine the Next Available Drive Letter on a Computer?" (www.microsoft.com/technet/scriptcenter/resources/qanda/jan05/hey0122.mspx). Although this script works well, the Windows Management Instrumentation (WMI) service (winmgmt.exe) must be installed on the computer from which you're running the script. But that's not always the case, so I decided to write a script that finds an available drive letter and maps it to a specified

path. Instead of using WMI to find an available drive letter, FindNextDrive.vbs uses the Microsoft Scripting Runtime Library's FileSystemObject object. Thus, it works on any computer running Windows Script Host (WSH).

Here's how FindNextDrive.vbs works. The script begins by creating a Scripting Runtime Library Dictionary object (aka dictionary), which it fills with 26 key/value pairs. The keys are the letters of the English alphabet. Each key's value is set to False, which indicates the drive letter is available.

Next, the script calls the GetNextDriveLetter function to find out which drives are already mapped. First, the function sets its return value to -1 in case there are no drive letters available. Then, the function creates a FileSystemObject object, uses that object's Drive property to access the collection of currently defined drives, and iterates through the collection. For each used drive letter in that collection,

GetNextDriveLetter finds the equivalent drive letter (i.e., the equivalent key) in the dictionary and sets that key's value to True. For example, if the E drive is already defined, the function sets the E key's value to True, which indicates that the E drive can't be used for the new mapping. Finally, the function iterates through the dictionary to find the first key whose value is still False (i.e., a drive letter that still isn't defined) and assigns that letter to its return value.

After the GetNextDriveLetter function returns its value, the script checks it. When the return value is -1, you receive a message noting that there aren't any available drive letters. When the return value con-



Simon Zeltser

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tains a letter, the script maps the letter to the specified path and displays a message noting that it just mapped that drive letter.

You can download FindNextDrive.vbs from the *Windows IT Pro* website. (Go to www.windowsitpro.com, enter 101215 in the InstantDoc ID box, click Go, then click the *Download the Code Here* button.) Before you run the script, you need to customize the network path you want the script to map. To specify that path, find the line

```
filePath = "\\college\Teachers"
```

and replace `\\college\Teachers` with your network path. Note that this script doesn't use alternate credentials to map drives.

—Simon Zeltser, software developer and lecturer,
UCONN Enterprise Solutions
InstantDoc ID 101215

Divide and Conquer Mega-Sized Text and Log Files

Several times a year, various department heads give me text files and ask me to perform data analyses and create summary reports. Often these files are massive directory dumps or application data dumps that can be as large as 700MB and contain more than 9.5 million lines of text. I'm also occasionally asked to extract contents from extremely large text-based cluster logs, Web logs, and event logs for technicians who need to send log samples to our security department or to analysts to diagnose problems. In addition, there are times when I need to look at the data in an enormous text file so that I know how to work with its contents in a script.

Sometimes these mega-sized text and log files are too large for Notepad to open. Other times, Notepad is sluggish when I try to scroll through the file contents. Having smaller files not only makes it easier to do data analyses but also dramatically speeds up code development and testing.

After many months of working around this problem using a mixed bag of tactics such as exporting data to Microsoft Access or trying to open the files with some other application, I finally decided to write the Log Splitter utility. This HTML Application (HTA) splits large text files into smaller files that I can easily open with Notepad and work with when writing a script.

The Log Splitter utility offers simple but adequate functionality. After you download

the utility from the *Windows IT Pro* website (go to www.windowsitpro.com, enter 101218 in the InstantDoc ID box, click Go, then click the *Download the Code Here* button) and copy it to your computer, double-click it. In the UI (see Figure 1), enter the pathname of the text or log file you want to split or use the Browse button to locate it. You can split up the file by the number of lines or number of pages. To find out how many lines are in the file, click the GetLineCount button. Knowing the total number of lines can help you decide whether to split the file by line count or by number of files.

If you want to split the large file into a specific number of smaller files, select the *Split into number of files* option, then specify that number in the *Enter Line Count or Number of Files* field. If you want to split the large file into smaller files that contain a certain number of lines, select the *Split by Line count* option, then specify the maximum number of lines you want in the smaller files. You must enter a value of 100,000 or higher. I found that lower values tend to produce too many files, particularly if you're splitting a file of several hundred megabytes.

All that's left to do is to click the RunScript button and click OK. Before the utility starts splitting the large file, it checks for possible problems. If it finds a problem, it displays a message. For example, the utility checks whether the specified file is a text or log file. If you try to split another type of file, you'll receive the message *This script only works with .log' and .txt' files*.

After splitting the large file, the utility saves and names each smaller file. For

example, if you're splitting C:\data\massive.log into three smaller files, the smaller files will be named C:\data\massive~1.log, C:\data\massive~2.log, and C:\data\massive~3.log. If these smaller files already exist, they'll be overwritten.

Depending on the size of the file you're splitting, the process could take a long time to finish (e.g., about five minutes to split a 100MB file into five files), so the utility's UI is hidden while the process runs. The UI reappears when the process completes.

If you get the Microsoft Internet Explorer (IE) message *A script on this page is causing Internet Explorer to run slowly. If it continues to run, your computer may become unresponsive. Do you want to abort the script?* when running the Log Splitter utility, abort and see the Microsoft article "How to set time-out period for script" (support.microsoft.com/kb/175500). This article tells you how to add a new registry entry named MaxScriptStatements to alleviate the problem. It's a relatively simple modification, but as with all registry changes, you need to use extreme caution. After I received this message, I set the MaxScriptStatements value to 100000000 (100 million). That value works well for me, but you could try a smaller value and see how it works on your computer.

—Jim Turner, domain administrator and applications developer, Computer Sciences Corporation

InstantDoc ID 101218



Jim Turner



Figure 1: The Log Splitter utility's UI

ANSWERS TO YOUR QUESTIONS

Q: Where can I find the specification for the Virtual Hard Disk (VHD) format?

A: Microsoft released the "Virtual Hard Disk Image Format Specification" at www.microsoft.com/technet/virtualserver/downloads/vhdspec.mspx. The document is in line with the company's open specification promise. A number of resources are linked, including a Microsoft Word document with the full specification.

—John Savill
InstantDoc ID 97985

Q: How can I configure Microsoft Office Outlook's alerts for new items?

A: Outlook has several methods of alerting a user to the arrival of new email messages. You can configure a sound to announce a new message, cause the mouse pointer to change briefly to a flying envelope icon, make an envelope appear in the task bar, or display a new-item alert box in a pop-up. You can configure one or all of these options from Outlook's Tools menu.

To configure these options, select Email Options, Advanced E-mail Options, then select the check boxes for the options you want in the *When new items arrive in my inbox* section. Each alert is fleeting, and no user action is necessary to make the alert disappear. You can extend the time that a new-email alert box is visible to as long as 30 seconds, and you can further extend that time by editing the registry.

To make this registry change for Microsoft Office Outlook 2007, go to the HKCU\Software\Microsoft\Office\12.0\Common\DesktopAlerts subkey and open the DWORD parameter for TimeOn. (For Microsoft Office Outlook 2003, replace the 12.0 value in the subkey path with 11.0.) Change the base to Decimal and enter the time in milliseconds that the new email alert box should remain open. A decimal entry of 300,000 ms translates to 300 seconds (5 minutes) and a hexadecimal value of 000493e0.

I had a client who wanted to ensure that email recipients would always acknowledge the arrival of messages from important customers or supervisors. To help that client, I used the Outlook rule that lets you generate a New Item Alerts window that the recipient must manually close. You can use any of the conditions available in Outlook's New Rule wizard to control when a New Item Alerts window is presented.

You can also use the wizard to customize the New Item Alerts window pop-up

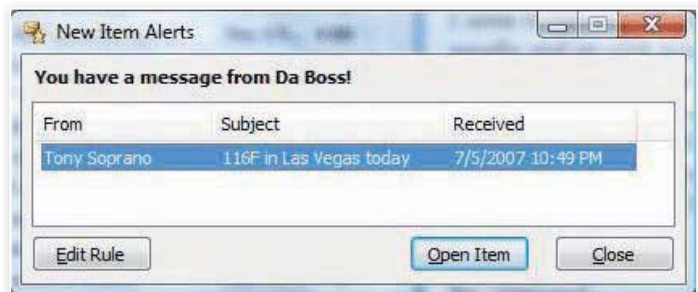
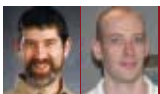


Figure 1: A customized New Items Alerts window to announce a message from a specific sender

message. For example, I might decide to create a rule that makes it much more difficult for users to ignore the arrival of a new email message from Tony Soprano. When users receive a message from Tony Soprano (i.e., from the email address tony.soprano@emailonastick.com), I can have the New Item Alerts window display the text *You have a message from Da Boss!*, as Figure 1 shows.

—William Lefkovic
InstantDoc ID 97030



William Lefkovic | william@mojavemediagroup.com
John Savill | jsavill@windowsitpro.com

SCVMM 2008's VIRTUAL MACHINE TEMPLATES

by Sean Deuby

Microsoft System Center Virtual Machine Manager (SCVMM) 2008 provides welcome updates to the original product. I gave an overview of SCVMM 2008 in "Let SCVMM 2008 Manage It All" (September 2008, InstantDoc ID 99768); in this article I show you how to install the product and bring a Hyper-V host under its control. After I show you how to create a managed host, I explain how to clone an existing virtual machine (VM) and create hardware and OS profiles. Finally, I show you how to use these profiles and an existing VM to create a template that you can use to quickly generate a new VM to your specifications. (For information about SCVMM integration and VMware ESX Server, see the sidebar "SCVMM and ESX Server Integration," page 25.)

Installing SCVMM

You can download a 180-day evaluation version of SCVMM 2008 from <http://technet.microsoft.com/en-us/evalcenter/cc793138.aspx>. Although you can install SCVMM in complex configurations that require multiple servers (as I discuss in "Let SCVMM 2008 Manage It All"), for the purposes of this article we'll run all the components (server, console, library, and Microsoft SQL Server database) on one server.

SCVMM 2008 has the following software requirements for successful installation:

- The Server service must run on Windows Server 2008 x64 (although you can run SCVMM itself on a VM).
- Both the Server service and the administrator

console require Windows PowerShell, which is included in Server 2008.

- SCVMM requires Windows Remote Management, which is included in Server 2008.
- You must configure Microsoft Internet Information Services (IIS) 7.0 (which Server 2008 includes) to run the IIS 6.0 Metabase Compatibility, IIS 6.0 Windows Management Instrumentation Compatibility, Static Content, Default Document, Directory Browsing, HTTP Errors, ASP.NET, .NET Extensibility, ISAPI Extensions, ISAPI Filters, and Request Filtering features.
- SCVMM requires SQL Server 2008 or SQL Server 2005 (although you can also use SQL Server 2005 Express Edition, which is included in SCVMM).

Most server-side components are included with either SCVMM or Server 2008 and are automatically configured when you install SCVMM. For more detailed information about the software and hardware requirements necessary to install SCVMM, go to the Microsoft System Center Virtual Machine Manager website (www.microsoft.com/systemcenter/virtualmachinemanager/en/us/system-requirements.aspx).

Adding a Host to Manage

For the purposes of this article, I installed SCVMM on a Hyper-V host computer named THINKPDT61P, as Figure 1, page 22, shows, with SCVMM managing the host. Once the console is up and running, we need to add another host to manage. Selecting the Hosts view





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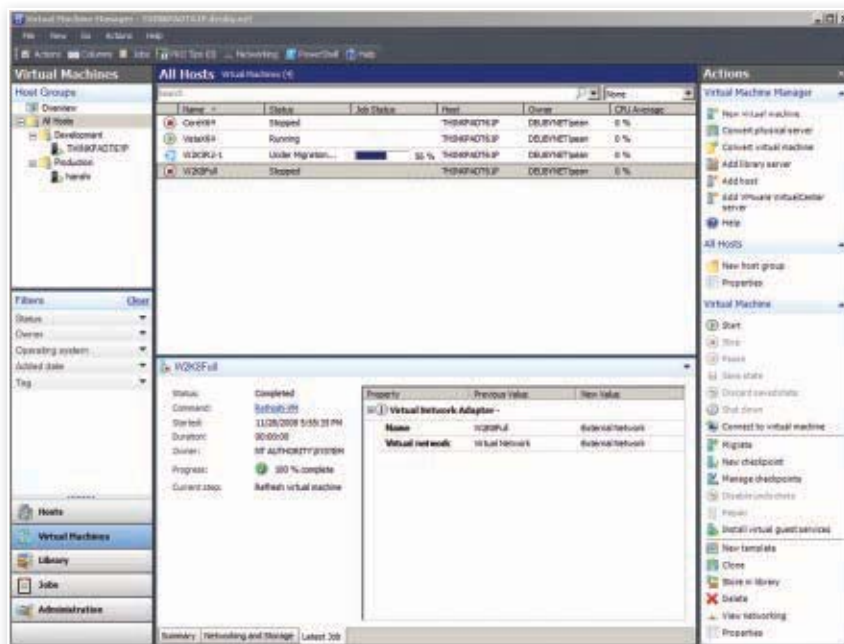


Figure 1: SCVMM installed on THINKPDT61P

in the left-hand pane displays an *Add host* task in the Actions pane. Clicking that task starts the Add Hosts wizard, which lets you easily find a host either by directly entering the host name or by using the wizard to search in Active Directory. For this article, I've already added the Hyper-V host HANSHI to be managed by SCVMM. Both hosts have their own Virtual Machine Manager (VMM) libraries, kept in sync through DFS Replication (DFS). (You can install DFS as a File Service role feature in Server 2008; for information about using DFS, see "Get in Sync with DFS," April 2007, InstantDoc ID 95223.)

Cloning the Template Source Virtual Machine

To create a VM template, you must first have a deployed VM to use as its source. For this article, I used a 64-bit Windows Server 2003 VM named W2K3R2x64. Because creating the template will destroy the VM, we must create a clone of the VM to use for the template. To create a clone, first make sure the VM is in either a stopped or saved state. Then, click the VM to highlight it and select Clone from either the context menu or the Actions pane. The wizard will ask for the clone's name, hardware and network configuration, destination host, path on the host, and startup and shutdown properties. The wizard will also ask whether you want

the cloned VM to reside as a deployed VM on a host or to be stored in the VMM library. If you store the cloned VM in a library, it is inactive and offline. To make the VM active, simply select the Deploy action. For this article, I left the original name, and I stored the cloned VM in HANSHI's library. Because the original VM will be destroyed to create the template, no duplicate names will exist.

Creating a Hardware Profile

The next step in building your VM library is to create a hardware profile. A hardware profile specifies the hardware configuration to be applied to a new VM created by SCVMM 2008. As Figure 2 shows, you can specify the number of processors and one of 25 virtualized processor configurations, the amount of memory, the network to use, IDE/SCSI configuration, and more. By default, a hardware profile includes a built-in IDE drive (although you can't

modify this drive until you create a VM). You can add and configure as many as four virtual SCSI adapters when you create a VM.

Using hardware profiles lets you standardize hardware across all your VMs. You don't need to create a separate hardware profile for each OS configuration—only when hardware requirements are different from the standard. For example, a Windows 2003 domain controller hardware configuration might require 1.5GB of memory with one processor, whereas a SQL Server 2005/Server 2008 configuration might require 4GB of memory with dual processors. For this article I create just one simple configuration that's sufficient for demonstrating the template process.

To create a new hardware profile, click the Library view in the left-hand pane of the SCVMM administrator console. The Library view shows the Library Actions section in the right-hand Actions pane. In the Library Actions section, click *New hardware profile* to launch the New Hardware Profile dialog box. Enter a short descriptive name, such as Default or Standard, as well as an optional description. Click the Hardware Settings tab to configure the hardware settings. Because we're creating a simple test configuration, 1GB of memory and any processor configuration is adequate.

Creating a Guest OS Profile

Now that we've created the new VM's

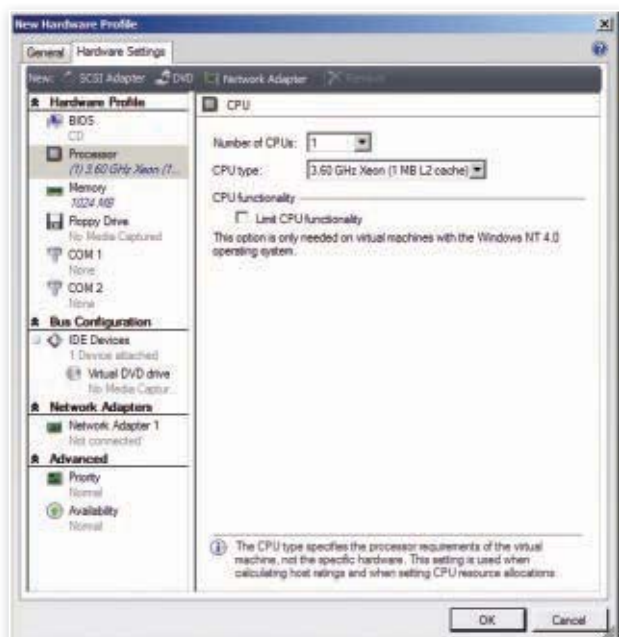


Figure 2: Creating a hardware profile

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■ SCVMM 2008 VM TEMPLATES

hardware configuration, we need to also configure the OS. To do so, we'll use a guest OS profile. The guest OS profile is a customized version of the base OS configuration for the new VM it's applied against. You can think of the guest OS profile as a user-friendly version of Sysprep. You need to create a profile for each type of OS configuration; as with the hardware profile, having separate OS profiles lets you create a standardized set of OS configurations that simplifies the task of managing your virtual infrastructure.

To create a new OS profile, click the Library view in the left-hand pane. Click the *New guest OS profile* action to launch the Guest OS Properties dialog box. On the General tab, enter a short descriptive name, such as W2K3 R2 x64, to describe which OS the profile is designed for. Next, click the Guest OS tab to configure the OS profile. You can preconfigure a computer name, or you can let SCVMM randomly create an initial name. Enter the required name, organization name, and local administrator password. Enter a product key, unless the OS is a Server 2008 or Windows Vista volume license build, in which case you can leave that field blank. Note that the product key isn't obscured after you enter it, so anyone with rights to access the guest OS profile can also obtain the product key. The product key is obscured, however, when it's used as part of a VM template, so self-service users can't see it. Select the time zone and OS type. You can configure the profile to automatically join a domain or remain in a workgroup. Finally, if you want to execute additional commands, the dialog box provides options for an answer file, as Figure 3 shows, and for run-once command scripts.

Choosing a Virtual Hard Disk

The default SCVMM library has several dynamically expanding disks, which is adequate for our lab-based example in which space is more important than performance. In a production environment, you'd want to create several Virtual Hard Disks (VHDs) for your library that use fixed-size disks of different capacities. Fixed disks perform better than dynamically expanding disks, but because their size is fixed regardless of how much data is on them, they have a bigger effect on your storage requirements. Another caveat when using dynamically

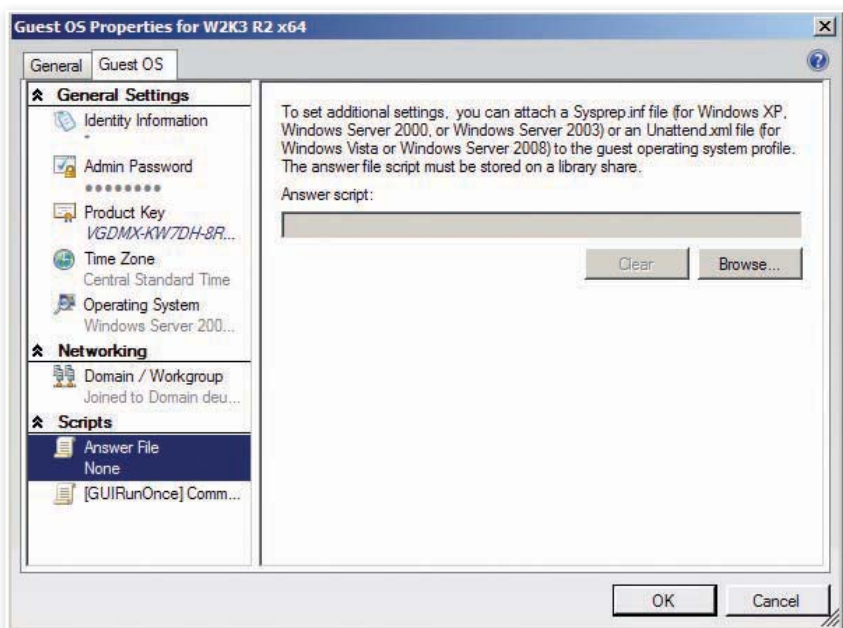


Figure 3: Creating a guest OS profile

expanding disks is that host disk fragmentation can cause a huge performance hit. Unlike a fixed disk, which is allocated as a sparse file when it's created, a dynamically expanding disk might use sectors scattered all over a fragmented disk.

Creating a New Template

Now that we have a VM to use as a baseline and hardware and guest OS profiles to configure new machines, we need to create an SCVMM template for generating new VMs. Like hardware profiles and guest OS profiles, a template is a database object; you won't find it in the SCVMM library folder structure. An SCVMM template combines a hardware profile, a VHD, and a guest OS profile. You can use a VHD either from the library or from an existing VM, but be aware that if you use an existing VM's VHD, the VM will be destroyed because the resulting Sysprep process strips the VM of its computer identity. Also, be sure the VM is free of restrictive password policies that could prevent Sysprep from setting the Administrator password. It's best to have the VM be a member of a workgroup rather than a domain so that the VM doesn't inherit the domain's security policies; appropriate policies will be enforced when a new VM is created from this template and joined to a domain.

To create the VM template, click New Template in the Library view to launch the

New Template wizard, select the source as an existing VM, and choose W2K3R2x64. (Or select the W2K3R2x64 VM, then click New Template in the Actions pane.) Click Yes to acknowledge that you plan to overwrite W2K3R2x64. Keep the same name, but consider adding a description of the hardware and guest OS profiles you'll use. Choose the default hardware profile in the Configure Hardware step and the W2K3 R2 x64 guest OS profile in the Guest Operating System step. (These are the profiles we just created.) For our example we'll create the template in THINKP61P's library.

The final step, Select Path, is a bit confusing. You might wonder why, if a VM template is a database object, this step asks for a share location in the library. The share is where the VHD that you associate with the template will be stored. To minimize confusion, I recommend that you create a subfolder in the VHD folder, called Template VHDs. This way, when you view the library via the file system you can easily see these VHDs' purpose. Confirm your settings, and click OK to begin the template creation. Figure 4 shows how the VM is stepped through the Sysprep process during template creation.

Creating a New VM

Now that we have a template, we can use it to create a new Windows 2003 R2 x64 VM. Highlight the template and click New Virtual Machine in the Actions pane to

SCVMM and ESX Server INTEGRATION

When I first heard about the integration of Microsoft System Center Virtual Machine Manager (SCVMM) 2008 and VMware's ESX Server, I got really excited because I thought that SCVMM could directly manage ESX. After some research, I discovered that my assumption was incorrect.

SCVMM integrates only with VMware vCenter (formerly VMware VirtualCenter). As you might know, at least one vCenter server is required to manage most of the enterprise features of VMware Infrastructure, such as High Availability (HA), vMotion, and Distributed Resource Scheduler (DRS). SCVMM communicates with a set of published vCenter APIs. For SCVMM to integrate with ESX, you must purchase vCenter (at a price of approximately \$6,000). But if you already have vCenter, you can use SCVMM to manage a mixed Hyper-V and ESX Server environment.

SCVMM is significantly less expensive than vCenter. So if in a future release Microsoft could incorporate all of vCenter's features in SCVMM, the company would have a very attractive product that would significantly reduce the cost of implementing the enterprise features of VMware Infrastructure. For now, we'll have to wait and see whether SCVMM will be a suitable replacement for vCenter in the future.



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launch the New Virtual Machine wizard. (Alternatively, right-click the W2K3R2x64 template in the Library view and select New Virtual Machine.) For this article, I used W2K3R2x64-1 as the new VM's identity. As you go through the wizard, you can make different hardware choices and choose a different guest OS profile, but if you just click Next, the wizard will use the values from the hardware and software profiles you incorporated into the template. Select the host on

which you'll deploy the new VM (I deployed it to HANSHI) and the path on the host to where the VM will be stored. (If you've configured the default VM path, you can just click Next.) Select the network interface you want to use, and indicate what actions the VM should take when the host server starts and stops. In the Summary screen you can choose to automatically start the VM after it's been deployed to the host server. Click Finish to start the VM creation.

Additional Tips

If you encounter a problem working with a VM in SCVMM that requires repair outside of SCVMM (e.g., in Hyper-V), right-click the VM, select Repair, then select the Ignore radio button to dismiss the failed state and simply refresh the VM's status within SCVMM. Hyper-V networking can be confusing. SCVMM has a "view networking" feature that shows you a graphical representation of how a VM is connected to the host and network. You can even broaden the scope to show the network configuration of all the VMs on the host. This feature is helpful for ensuring that you configured networking correctly should you have connectivity problems.

SCVMM Best Practices

SCVMM's VM template feature lets you quickly and consistently provision VMs. Although you might be tempted to start creating VMs within minutes of installing SCVMM, I recommend that you take the time to understand VM templates first. Then, gather your requirements for both VM hardware configurations and OS profile types. Use these requirements to create appropriate hardware profiles and guest OS profiles. Copy your stable of ISO disk images to the VMM library, and consider using a feature such as DFSR to keep all your libraries in sync with one another.

Once you have all the building blocks in place, create and configure template VMs of each OS type, and perhaps even for configurations within types. Clone them for safekeeping into the VMM library, then create VM templates from these template VMs. With the resulting library of preconfigured templates, you can quickly provision VMs when the need arises. Just don't forget to manage these VMs through their complete life cycle, which includes storing them back in the VMM library or decommissioning them when they're no longer needed.

InstantDoc ID 101192

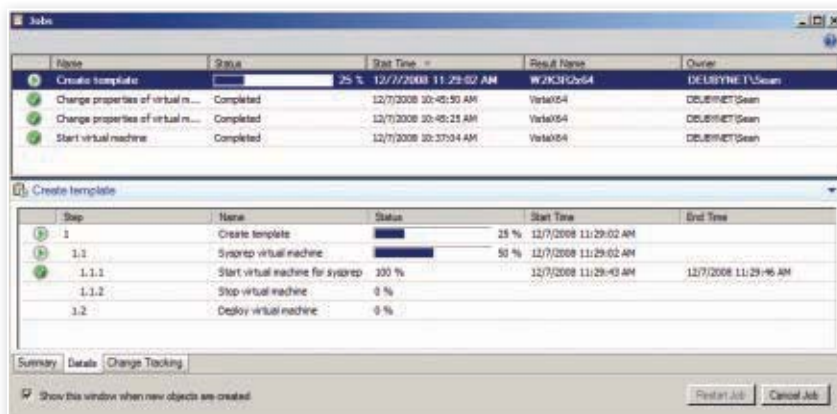


Figure 4: Creating a new VM template



Sean Deuby

(sdeuby@windowsitpro.com) is a contributing editor for *Windows IT Pro*, an enterprise solutions strategist with Advaiya, and former technical lead of Intel's core directory services team. He's been a directory services MVP since 2004.

PROBLEM:

In SMBs with multiple sites, there's no simple automated way to map printers for mobile users.

SOLUTION:

Customize AddressBasedPrinter.vbs, then use with a network logon script to automatically create site-specific printer mappings when mobile users log on.

WHAT YOU NEED:

AddressBasedPrinter.vbs, network logon script, Notepad (or another text editor)

SOLUTION STEPS:

1. Pick the site names.
2. Download and open AddressBasedPrinter.vbs.
3. Customize the code in callout B.
4. Customize the code in callout D.
5. Test AddressBasedPrinter.vbs.
6. Integrate with existing network logon scripts.
7. Update AddressBasedPrinter.vbs as needed.

DIFFICULTY:

Create Site-Specific Printer Mappings for MOBILE USERS

by Alex K. Angelopoulos | Make manual mappings a mere memory

Providing local print services for mobile users can be a perpetual problem in small-to-mid-sized businesses (SMBs) with multiple sites. Currently, there is no out-of-the-box solution

for providing location-based print services to mobile users for OSs earlier than Windows Vista. Starting in Vista, Microsoft offers an out-of-the-box solution for location-based printer assignment, but it isn't very useful for SMBs for two reasons. First, the assignment policies require an Active Directory (AD) structure that accurately reflects WAN topology. Second, the assignment policies take effect only after a Group Policy refresh.

It's possible to solve this kind of problem with a script; it just takes some scripting skills and some time, which is often in short supply in a hectic network. The central problem is figuring out where a user is when he or she logs on to a network. The most reliable technique for determining a user's location is to get the network ID for the local system, then match that address to a known location. Although you can summarize the solution very simply as "if a computer is on network X, map printer group Y," scripting that solution is far from simple.

First, you need to get the network ID for the local system. You can obtain the information needed to calculate this ID from Windows Management Instrumentation's (WMI's) Win32_NetworkAdapterCon-



figuration class. However, you need to get the values of two properties—IPAddress (which contains IP addresses) and IPSubnet (which contains subnet masks)—then perform a bitwise AND operation on those values to get the network ID. To further complicate matters, computers generally have several network interfaces, so IPAddress and IPSubnet are arrays that typically contain multiple IP addresses and subnet masks, respectively. Even when there's only one IP address or one subnet mask, you still need to loop through the property to extract it because WMI returns that IP address or subnet mask as an array.

If you're very lucky, you'll have only one network ID at this point. However, in all likelihood, you'll have several network IDs, and no direct way to determine which one is used for the LAN connection. To determine the correct one, you need to compare the network ID for the local computer to the network IDs for each site until you find a match.

Once a match is found, you still aren't completely finished. It's possible that the mobile user is running a Terminal Server session. You don't want to map printers for a Terminal Services session because printers located near the Terminal Server are by definition almost certain to be far away from the user. So, you also need to account for this situation. Finally, you need to handle two other possibilities: situations in which there are multiple matches, and situations in which there are no matches.

The AddressBasedPrinter.vbs script in Listing 1 does all this. When used with an existing network logon script, AddressBasedPrinter.vbs automatically determines which site a mobile user is in, then maps the appropriate printers at that site.

To implement this solution, you don't need to understand how AddressBasedPrinter.vbs works. (Although if you're interested, see the sidebar "How AddressBasedPrinter.vbs Works," page 28.) Instead, you just need to follow these steps:

1. Pick the site names.
2. Download and open AddressBasedPrinter.vbs.
3. Customize the code in callout B.
4. Customize the code in callout D.

Listing 1: AddressBasedPrinter.vbs

```

''Dim dbg: dbg = True
A Dim networkIDs: Set networkIDs = CreateObject("Scripting.Dictionary")
Dim Nacs, Nac
Set Nacs = GetObject("winmgmts://./root/cimv2").ExecQuery( _
    "Select IPAddress,IPSubnet from Win32_NetworkAdapterConfiguration" _
    & " where IPEnabled = true")
For each Nac in Nacs
    Dim N
    If (Not IsNull(Nac.IPAddress)) And (Not IsNull(Nac.IPSubnet)) Then
        For N = 0 To UBound(Nac.IPAddress)
            networkIDs(NetworkID(Nac.IPAddress(N), Nac.IPSubnet(N))) = vbNullString
        Next
    End If
Next
Dim IDList: IDList = networkIDs.keys

B Dim Locations: Set Locations = CreateObject("Scripting.Dictionary")
Locations("New York") = "192.168.1.0"
Locations("Boston") = "192.168.42.0"
Locations("Chicago") = "192.168.84.0"
Locations("Atlanta") = "192.168.85.0"
Locations("Los Angeles") = "192.168.111.0"

Dim SystemLocation
SystemLocation = vbNullString
Dim MultipleMatches
MultipleMatches = False

C Dim WshShell
Set WshShell = CreateObject("WScript.Shell")
Dim Session
Session = WshShell.ExpandEnvironmentStrings("%SessionName%")
If Session = "Console" or Session = "%SessionName%" Then
    Dim Location
    For Each Location in Locations.Keys
        Dim currentID
        For Each currentID in IDList
            'If dbg Then WScript.Echo "ID: ", 'CurrentID
            If currentID = Locations(Location) Then
                If dbg Then WScript.Echo "matched", CurrentID
                If SystemLocation <> vbNullString Then
                    MultipleMatches = True
                Else
                    SystemLocation = Location
                End If
            End If
        Next
    Next
End If

If Not MultipleMatches Then
    Dim WshNetwork
    Set WshNetwork = CreateObject("WScript.Network")

    D Select Case SystemLocation
        Case "New York"
            ' Code to map New York printers. Example:
            ' WshNetwork.AddPrinterConnection "Default","\\NYP01\CentralPrinter"
        Case "Boston"
            ' Code to map Boston printers.
        Case "Chicago"
            ' Code to map Chicago printers.
        Case "Atlanta"
            ' Code to map Atlanta printers.
        Case "Los Angeles"
            ' Code to map Los Angeles printers.
        Case Else
            'If dbg then
            'WScript.Echo "No matching location found."
            'WScript.Echo "SystemLocation:", SystemLocation
            ''End If
        End Select
    End If

    E Function NetworkID(Address, Mask)
        Dim AddressOctets, MaskOctets, Result, N
        AddressOctets = Split(Address, ".")
        MaskOctets = Split(Mask, ".")
        ReDim Result(UBound(AddressOctets))
        For N = 0 To UBound(AddressOctets)
            Result(N) = AddressOctets(N) And MaskOctets(N)
        Next
        NetworkID = Join(Result, ".")
    End Function

```

How AddressBasedPrinter.vbs Works

AddressBasedPrinter.vbs in Listing 1, page 27, performs many tasks to determine which site a mobile user is in and create mappings to the appropriate printers at that site. Here's a brief overview of how it works.

The script's first main task is to collect the TCP/IP-enabled Win32_NetworkAdapterConfiguration instances from the local computer. As callout A shows, for each configuration, it retrieves the IP addresses and subnet masks from the IPAddress and IPSubnet properties, respectively. After making sure these properties aren't empty, the script uses the NetworkID function in callout E to compute network IDs from the IP addresses and subnet masks. For example, if a computer has an IP address of 192.168.1.72 and a subnet mask of 255.255.255.0 associated with that address, the network ID for the computer—and all the other computers on the same network—will be 192.168.1.0. (For information about how the NetworkID function works, see the web-exclusive *Windows IT Pro* article "Rem: How to Use WMI to Calculate a Computer's Network ID from Its IP Address and Network Mask" at windowsitpro.com/article/articleid/47100/47100.html.) The script adds the IDs to the networkIDs dictionary as keys. Using the Scripting Runtime Library's Dictionary object is better than using an array because you don't know how many network IDs there will be. By storing them in a dictionary at this point, you avoid having to micromanage a resizable array. In the last line in callout A, the script extracts the networkIDs dictionary's keys and assigns them to the IDList array.

Next, the script creates another dictionary named Locations to hold the site names and network IDs specified in callout B. The code in callout C uses the Locations dictionary to determine which site the mobile user is in.

In callout C, the script makes sure that the mobile user isn't running a remote Terminal Services session. If Terminal Server is properly configured, mobile users won't run a standard logon script when they log on, but just in case, the script checks for the %SessionName% logon variable. This variable exists on all OSs from Windows 2000 Server forward that can support Terminal Services sessions. When a user is directly logged on to the console of a system that has Terminal Services support, this variable will exist and will contain the value *Console*. If a user has a legacy OS (which includes Windows 2000 Professional in this case), this variable shouldn't exist and checking its value will simply return %SessionName%. In either case, the script handles the printer mappings. However, if the user is running a nonconsole session (i.e., a remote Terminal Services session), the script doesn't perform any matching and therefore won't accidentally set up printing to a remote location.

When the user is directly logged on to the console, the script checks whether the network IDs in the Locations dictionary match the network IDs in the IDList array. When the script finds a match and that match is the first one found, it sets the SystemLocation variable to the corresponding site name, which it gets from the Locations dictionary. If SystemLocation has already been set because a previous match was found, the script sets MultipleMatches to True.

Next, AddressBasedPrinter.vbs checks the value in MultipleMatches. When the value is True, the script ends. This ensures that printers aren't mapped for multiple network locations in case of a configuration error. When the value is False, the script creates a Windows Script Host (WSH) WshNetwork object, which enables connections to network shares and printers, then runs the VBScript Select Case statement.

In the Select Case statement, the script looks for a match between the site in the SystemLocation variable and the sites in the Case clauses in callout D. When the script finds a match, it runs the code under that Case clause (i.e., the code that creates the printer mappings), then quits. When no matches are found, the Case Else clause runs. In this case, the script displays a message that notes there aren't any matching sites, then quits.

5. Test AddressBasedPrinter.vbs.
6. Integrate with existing network logon scripts.
7. Update AddressBasedPrinter.vbs as needed.

STEP 1: Pick the Site Names

The first step is to pick a name for each site that contains printers mobile users might need to use. They should be simple, recognizable names. The names don't need to be elaborate because they're used only for matching purposes in the script. Write down each site's name along with its network ID for the LAN connection.

STEP 2: Download and Open AddressBasedPrinter.vbs

The next step is to download AddressBasedPrinter.vbs. To do so, go to www.windowsitpro.com, enter 101230 in the InstantDoc ID box, click Go, then click the *Download the Code Here* button. Open AddressBasedPrinter.vbs in a text editor, such as Notepad. (To open it in Notepad, right-click the script and click Edit.)

STEP 3: Customize the Code in Callout B

In AddressBasedPrinter.vbs, find the code in callout B. This is where you need to perform your first customization. Customizing this content doesn't require much scripting knowledge. All you need to do is specify each site name and its network ID following the format

```
Locations("SiteName") = "NetworkID"
```

where *SiteName* and *NetworkID* are the site's name and network ID, respectively.

In AddressBasedPrinter.vbs, I defined five sites, but you can have fewer or more if needed. If you have fewer than five sites, delete the unused lines. If you have more than five sites, copy and paste one of the existing Locations lines for use as a template.

STEP 4: Customize the Code in Callout D

In AddressBasedPrinter.vbs, find the code in callout D. You first need to customize the site names in the Case clauses of the VBScript Select Case statement. The site

Learning Path

LEARN HOW TO AUTOMATE OTHER PRINTER TASKS

"Per-Machine Printer Connections + Custom Plug-In,"
InstantDoc ID 49741

"Per-Machine Printer GUI," InstantDoc ID 93741

"Programmatically Change Permissions in Print
Clusters," InstantDoc ID 97090

"Rem: Mapping a Local IP Printer," InstantDoc ID 47899

"Use 2 Tools to Assign Printers in Just 2 Steps,"
InstantDoc ID 96369

"HTA Makes Installing Shared Printers Easy," InstantDoc
ID 93233

names must precisely match the names you used in the code in callout B. For example, if you specified "New York" for a site, the Case clause must read

Case "New York"

If you use different capitalization (e.g., "new york") or different spacing (e.g., "NewYork"), the script won't work correctly.

Once again, if you have fewer than five sites, delete the unused Case clauses in callout D. (Don't delete the Case Else clause.) If you have more than five sites, copy and paste an existing Case clause for use as a template.

Next, you need to insert the following line under each Case clause:

```
WshNetwork.AddPrinterConnection _
    "PrinterName", "PrinterPath"
```

where *PrinterName* is the local display name you want to assign to the printer and *PrinterPath* is the share path to the printer. In callout D, you'll find an example of this line. In this example, the code is adding a mapping to the CentralPrinter printer shared on the NYPS01 server. This server will have the local display name of Default.

You can define as many printers as desired for each site. By default, these printer mappings won't be stored in the user's profile and will disappear when the session ends.

Finally, in the code in callout D, remove any lines that begin with an apostrophe (i.e., the sample mapping code and the lines that

start with ' *Code to map*). The customizations are now complete, so you can save the script and close Notepad.

STEP 5: Test AddressBased-Printer.vbs

Testing AddressBasedPrinter.vbs before you integrate it with your network logon scripts is much easier than testing it after the integration. I recommend that you use the following process to make sure the script works correctly for the sites you support.

First, at one of the sites, run AddressBasedPrinter.vbs from a laptop that has no existing local printer mappings to confirm that the script correctly maps printers without raising any errors. Then, share the script with a mobile user at each site and have that person run it the same way to confirm that the local printer mappings work. If they

To call AddressBasedPrinter.vbs from a VBScript logon script, you need to add the following code snippet to your logon script:

```
Set WshShell = _
    CreateObject("WScript.Shell")
dir = Left( _
    WScript.ScriptFullName, _
    Len(WScript.ScriptFullName) - _
    Len(WScript.ScriptName))
PrintScript = dir & _
    "AddressBasedPrinter.vbs"
WshShell.Run PrintScript
```

STEP 7: Update AddressBased-Printer.vbs as Needed

As part of your network maintenance activities, you'll need to update AddressBased-

AddressBasedPrinter.vbs automatically determines which site a mobile user is in, then maps the appropriate printers at that site.

work, you're ready to integrate AddressBasedPrinter.vbs with your network logon scripts.

STEP 6: Integrate with Existing Network Logon Scripts

AddressBasedPrinter.vbs is designed for use with existing network logon scripts. If you currently use VBScript logon scripts, you can insert the contents of AddressBasedPrinter.vbs into the logon scripts at each site. Alternatively, you can call AddressBasedPrinter.vbs as an external script from virtually any kind of network logon script, including .cmd and VBScript logon scripts.

To use AddressBasedPrinter.vbs as an external script, you need to place it in the same directory as your network logon scripts at each site. Assuming you've kept the name AddressBasedPrinter.vbs, you can call it from a .cmd logon script with the line

```
cscript %dp0
```

Printer.vbs when necessary. For example, you'll need to update the script whenever you add a new site to your WAN or whenever you remove, add, or rename shared printers and print servers on local networks.

Give It a Trial Run

If you provide local printer support to mobile users who visit multiple company sites, automating printer assignment with AddressBasedPrinter.vbs is probably well worth a trial run. You'll likely reduce the amount of time you spend providing printer support to mobile users. Plus, mobile users' productivity will likely increase because they'll no longer have to wait for printer support.

InstantDoc ID 101230



Alex K. Angelopoulos

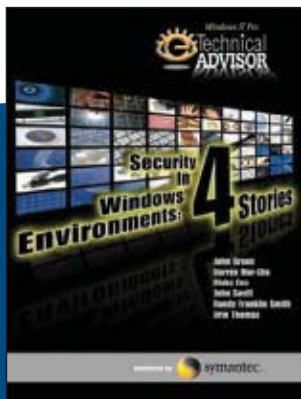
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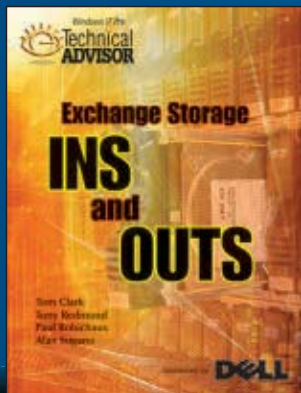
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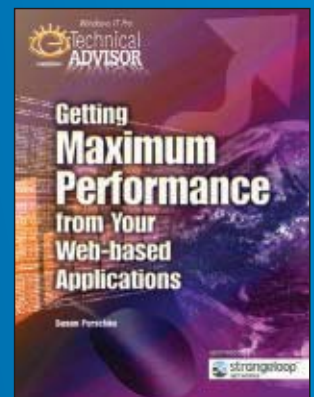
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Exchange Server 2007 SP1 Resurrects Public Folder Management

[Editor's Note: The author has provided five screencasts to accompany this article. You can view the *Create a New Public Folder Database*, *Create Public Folders Using the Public Folder Management Console*, *Mail-Enable Public Folders*, *Configure Public Folder Database Properties*, and *Configure Individual Public Folder Settings* screencasts at InstantDoc ID 100970.]

Disregard the rumors—public folders will be around for a while

by J. Peter Bruzzese

Microsoft Exchange Server 2007 released to manufacturing amidst a swirl of rumors about public folders. First, customers began to notice that whereas previous versions of Microsoft Outlook required a public folder structure to function, Outlook 2007 clients don't require them at all. Then, a post on the "You Had Me at EHLO" Exchange Team blog site suggested that Microsoft would prolong public folder support, but also that the company was "de-emphasizing" public folders—leading some customers to start



buzzing about alternative solutions, such as SharePoint. But the strongest indication that Microsoft was pushing public folders aside was the fact that users could administer Exchange 2007's public folder structure only from Exchange Management Shell (EMS). Suddenly, a GUI-supported technology in Exchange 2003 (and earlier) was gone, and that development really stirred the community. To put people at ease, the Exchange Team explained that public folders weren't dead, although they would be supported for only 10 more years. (See the Learning Path for Microsoft guidance on public folders.)

So, you don't need to be too worried and rush into the arms of SharePoint just yet. You have time to consider your decisions. In fact, the recent release of Exchange 2007 SP1 will probably ease your mind. If the lack of a GUI tool for managing the public folder structure is a concern for you, you'll be happy to know that Microsoft has corrected the problem in SP1 by including a new tool called the Public Folder Management Console.

In a moment, we'll look at the control SP1 gives you over public folders from both Exchange Management Console's (EMC's) Server Configuration work center node and the Public Folder Management Console. But first, one more helpful capability that SP1 provides is a new administrator role called

the Exchange Public Folder Administrator. You can use this role to assign administrative permissions over public folders to a user or a group. To locate these permissions, select the Organization Configuration work center from the EMC navigation tree. In the Result pane, you'll see the Exchange Administrators tab. Click the tab, then click Add Exchange Administrator to begin the wizard.

The Server Configuration Work Center

Creating a new public folder database isn't difficult. You can do it during the installation of your first Exchange 2007 server: Simply specify that you have pre-Outlook 2007 or Eudora clients (which require a public folder database to function), and Exchange will install the database for you. If you need to create a new public folder database after installation, you'd use EMC by expanding the Server Configuration node and selecting or creating the storage group in which you want to put the public folder database. From the Actions pane, you can choose New Public Folder Database to begin the wizard. You can specify a name and location for the Exchange database (.edb) file, and you can leave the *Mount this database* option selected or clear it if you want to hold off on the mounting process. After you click New, the system will

Learning Path

WINDOWS IT PRO RESOURCES

"Are Public Folders Dead?" InstantDoc ID 41609

"Exchange 2007 SP1: The Inside Scoop," InstantDoc ID 96892

"Managing Public Folders in Microsoft Exchange Server 2007," InstantDoc ID 97145

"Migrating Public Folders from Exchange to SharePoint," InstantDoc ID 50172

"SharePoint and Public Folders, Part 1," InstantDoc ID 92930

"SharePoint and Public Folders, Part 2: Migration Options," InstantDoc ID 93127

"Strategies for Migrating Public Folders to SharePoint," InstantDoc ID 96744

MICROSOFT RESOURCES

"Updated Exchange Public Folder Guidance"
msexchangeteam.com/archive/
2008/03/31/448537.aspx

create the database. You can perform the same task through EMS by typing

```
New-PublicFolderDatabase
-Name "Name_of_Database"
-StorageGroup "Name_of_Storage_Group"
```

where *Name_of_Database* is the database name and *Name_of_Storage_Group* is the storage group name.

Before you add any folders to the database, you can configure database settings that will apply to those folders. Doing so is often wise because you might want to manage settings in bulk rather than on individual folders. Select the database and choose Properties from the Actions pane. You'll see four tabs.

The General tab. The General tab provides basic information about the database, including the most recent full and incremental backups and the status. A section called Maintenance Schedule configures automatic daily maintenance, purging items that have been deleted, defragmenting the database, cleaning up white space, and so on. You can adjust the schedule.

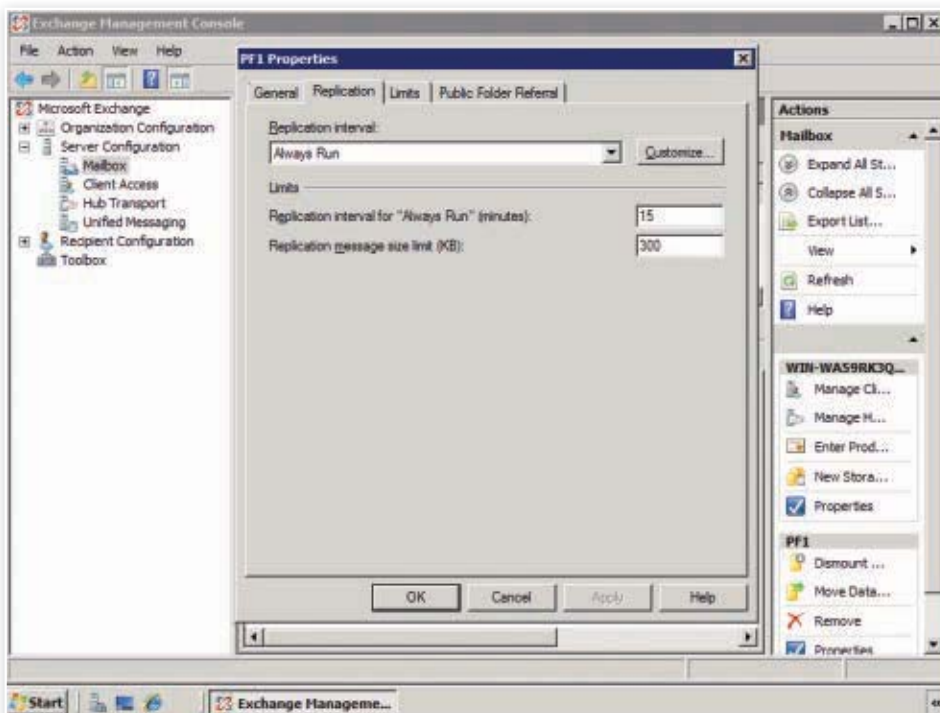


Figure 1: The Server Configuration work center's Replication tab

The Replication tab. On the Replication tab, which you can see in Figure 1, the *Replication interval* field determines how often public folders will be replicated. You can disable replication completely, change the time frame, and even customize the replication schedule. The default setting, Always Run, replicates public folders at the frequency specified in the *Replication interval for "Always Run" (minutes)* field. *Replication message size limit (KB)* specifies the size limit for a replication message. The system will group small items into a single replication message but handle larger items differently.

The Limits tab. The Limits tab sets storage limits, deletion settings, and age limits. *Storage limits* lets you configure mailbox size limits and issue warnings to users who exceed a threshold; you can even prohibit sending and receiving messages beyond a certain point. You can also allow for maximum post size (the default is 10MB). The *Warning-message interval* setting lets you configure when mailboxes are scanned for compliance.

Use *Deletion settings* to specify how long mailboxes are retained before they are purged—the default is 14 days. The *Do not permanently delete items until the database has been backed up* check box is somewhat unnecessary if you have a 14-day retention time. Hopefully, you back up more frequently than that, but if you alter the schedule, you might want to enable this setting.

Age limits lets you configure an age for the database (from 0 to 24,855 days) and applies to all folders in the database. When the items in a folder reach the specified age, Exchange deletes them. One benefit of using age limits is that, if you're using the public folder database to collect automated messages or spam, you can have the messages deleted automatically.

The Public Folder Referral tab. The Public Folder Referral tab configures the folder replica that the client application will ultimately access. The way referrals work is that when a client tries to open a public folder, the server determines where the contents should come from. Ordinarily, you have several replicas of your public folders

(although a small environment might have only a single location). When the server determines the best replica to offer, it gives the client a referral. If a replica exists on the local server, Exchange uses the local replica; if not, it looks in the same Active Directory site unless you specify otherwise on this tab. The default setting on this tab is *Use Active Directory site costs*. Alternatively, you can create a custom list of sites for Exchange to use.

The Public Folder Management Console

Before SP1, creating public folders with Exchange 2007 required working with EMS and—with the proper permissions assigned—the Outlook client. Without a GUI, you could get a bit frustrated with the inability to intuitively discover certain functions. You had to know exactly what you were doing in EMS, and not just with simple folder creation but also with more complex tasks such as public folder management, which might include folder-specific settings that override the database settings we just discussed or might involve the configuration of replicas. In fact, if you were transitioning from Exchange 2003 to 2007, I would have recommended using the Exchange 2007 management tools—except when it came to replicating the public folder data. Working with the System Manager in Exchange 2003 was just easier. But SP1's Public Folder Management Console changes all that.

You'll find the Public Folder Manage-

ment Console in the Toolbox options of EMC's navigation tree. When you open the tool, it opens a separate console that displays two groups of folders—Default Public Folders and System Public Folders—as you can see in Figure 2. If you select Default Public Folders, you get a few options, one of which is New Public Folder (in the Actions pane). If you click the link to begin the wizard, the system prompts you for a folder name. You can create top-level folders, or you can nest one folder inside another.

If you select an existing public folder, you'll see in the Actions pane that you can update content (allowing the folder to be updated immediately from all other replicas should a user on a different server add content to the folder), mail-enable the folder (public folders can receive posts from users but must be mail-enabled in order to receive email messages), or remove the folder. You can also access the folder's Properties. A folder's Properties page displays a three-tabbed dialog box.

The General tab. The General tab on the Properties page shows you standard information such as the size of the folder, the total number of items, and when the folder was most recently modified. The *Maintain per-user read and unread information for this folder* check box, which is selected by default, lets a user see whether a message has been read or remains unread in Outlook.

The Replication tab. On the Replication tab, you can choose other servers (if you have

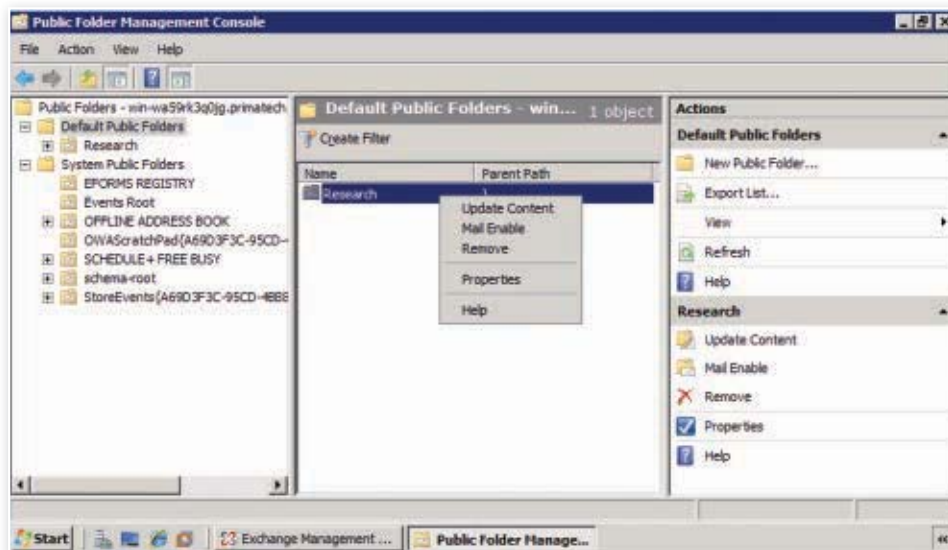


Figure 2: The Public Folder Management Console

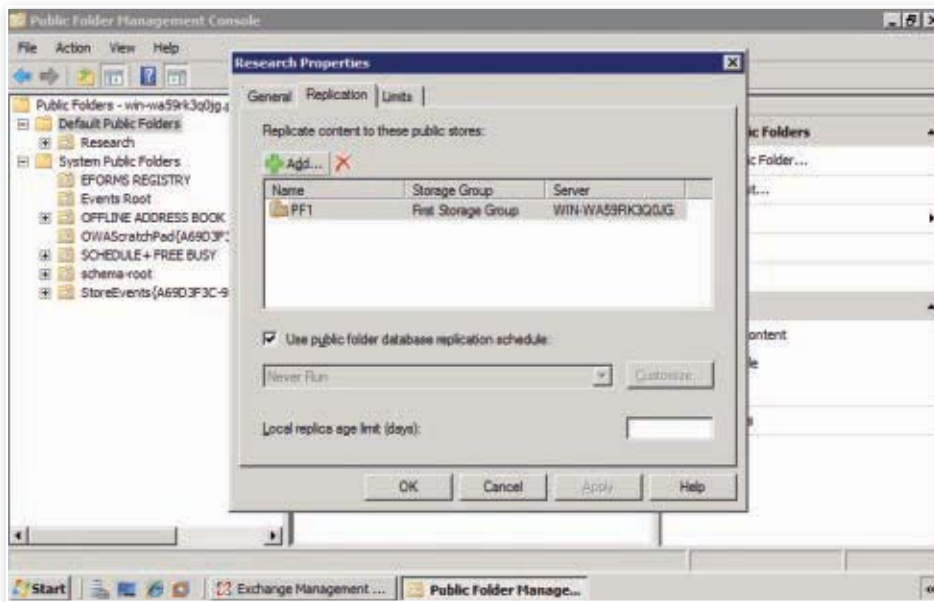


Figure 3: The Public Folder Management Console's Replication tab

them) to hold replicas of your public folders, as Figure 3 shows. Imagine that you have several branch offices around the world and that users everywhere need to access the same information. If all the data resides in just one location, you're looking at a ton of extra traffic at that location. However, creating replicas (not necessarily of every folder, but of folders that are interesting on the global level) in appropriate locations can reduce traffic and improve performance. You can adjust the replication schedule or simply go with the schedule already established on the database. You can also specify a local replica age limit (in days).

The Limits tab. The Limits tab lets you either use the default database quota, item retention, and age limits on the folder or choose a different set of limits to use. For example, you might decide that a particular folder requires a maximum item size for posts because of its content or that another folder requires a different age limit before content expires.

What Can SharePoint Offer You Now?

Now that you know what SP1 brings to the table, what do you want to do with your existing public folder structure? If you don't have one and you're building an organization from the ground up, will you still use public folders? Or will you take the plunge into SharePoint?

You might be thinking primarily of cost. Although SharePoint's most mature, supported, and expensive version is Microsoft Office SharePoint Server (MOSS) 2007, you don't need to use MOSS. The free Windows SharePoint Services version of SharePoint has most of the features you need to provide a document library and collaboration

In SP1, Microsoft has given us the tools we need to easily do our job of managing public folders through the Public Folder Management Console.

services for your users. So, cost might not be the most pressing factor. Or, considering the stability of public folders—proven over many years—you might be concerned about the relative newness of the SharePoint service offerings and prefer to stick with your public folder structure a little longer, until you can see what Microsoft develops next for SharePoint.

But Microsoft wants you to know what SharePoint can offer you now. Team Workspaces let teams collaborate and communicate easily; Document Management offers versioning and other modern document-management features such as check-in and check-out for documents, as well as

automatic notifications of content changes; and Workflow Applications are templates that you can customize to provide precisely what you need. Above all, Microsoft recommends that you consider a middle ground in which you begin using SharePoint now, so that you can see whether it might suit your needs, and prepare your organization for an eventual migration, however far in the future that might be.

Not Going Anywhere Soon

The clamor was beginning for Microsoft to continue supporting the public folder structure. But no one has said Microsoft can't support the use of public

folders in Exchange deployments (forever, if necessary) while still promoting SharePoint. True, SharePoint has some terrific, forward-thinking features, but sometimes you just want a public folder structure.

Public folders shouldn't be threatened with extinction in favor of an entirely new product, when the two technologies can

work side-by-side seamlessly. At least in SP1, Microsoft has given us the tools we need to easily do our job of managing public folders through the Public Folder Management Console.

InstantDoc ID 100970



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Working with PowerShell's Data Types

In Windows PowerShell, the data your statements retrieve, pass to other statements, and output to the console must conform to the Microsoft .NET Framework data types. For the most part, PowerShell automatically assigns and converts data to its correct data type. However, at times, you might want to control this process to create statements that better use the data you have available. Let's look at how to work with several types of data and how to cast and convert data to specific data types when needed.

Working with Strings

Administrators often work with data that's in the form of strings, and working with strings is a straightforward process in PowerShell. For example, the following code assigns the string "cat" to the \$a variable, then displays the result, which is *cat*:

```
$a = "cat"; $a
```

Because the code assigns a string to \$a, PowerShell automatically casts \$a with the *System.String* type.

You can use the *GetType* method and its *FullName* property to determine a variable's data type. For example, the command

```
$a.GetType().FullName
```

returns the result *System.String*.

To add strings together, you use the plus (+) operator. For instance, the following code adds the string " & dog " (including spaces) to \$a, then displays the result, which is *cat & dog*:

```
$a = $a + " & dog "; $a
```

You can add a numerical value to a string. When you do this, the number is automatically converted to a string. For example, the following code adds 10 to \$a, then displays the result, which is *cat & dog 10*:

```
$a = $a + 10; $a
```



Lesson 4 in the PowerShell 201 series explores how to work with strings, arrays, and other types of data

by Robert Sheldon

POWERSHELL'S DATA TYPES

If you were to verify the data type, it would still be String. For more information about working with strings, see "PowerShell 101, Lesson 4," May 2008, InstantDoc ID 98447.

Working with Numbers

Like string data, numerical data is simple to work with in PowerShell. You assign numerical values as you would string values, except that you don't enclose numerical values in quotes. When you specify a numerical value, PowerShell automatically assigns one of four data types to that value (unless you're concatenating the numerical value to a string, as you saw in the previous example):

- System.Int32, which is a 32-bit integer ([int] alias).
- System.Int64, which is a 64-bit integer ([long] alias).
- System.Double, which is an 8-byte, floating-point decimal ([double] alias).
- System.Decimal, which is a 12-byte decimal ([decimal] alias). Decimal provides more precision than Double.

The following statements demonstrate how PowerShell assigns data types to numerical values:

```
$a = 1234; $a
$a.GetType().FullName
System.Int32
```

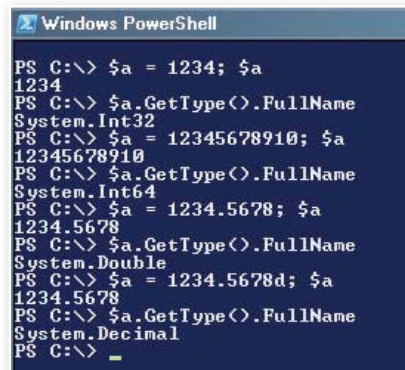


Figure 1: Assigning data types to numerical data

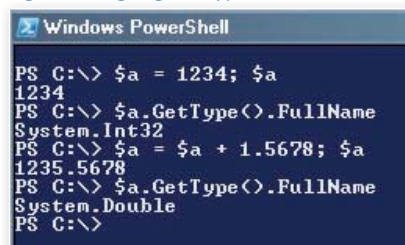


Figure 2: Adding two numerical values that have different data types

```
$a.GetType().FullName
$a = 1234.5678; $a
$a.GetType().FullName
$a = 1234.5678d; $a
$a.GetType().FullName
```

As Figure 1 shows, PowerShell assigns a data type to the first three variables based on the value. However, to assign the Decimal type, you must specify the letter *d* directly after the number; otherwise, PowerShell treats the value as a Double type.

You can use the plus operator to join numerical values. When you do so, the numerical values are added, not concatenated as they are with string values. For example, the following statements assign 1234 to \$a, then add 1.5678 to \$a:

```
$a = 1234; $a
$a.GetType().FullName
$a = $a + 1.5678; $a
$a.GetType().FullName
```

As Figure 2 shows, PowerShell adds the two values together and automatically converts the variable's data type from Int32 to Double.

If you try to add a string that isn't a number to a numerical value, you'll receive an error. PowerShell can't convert non-numeric string values into numerical values. For example, you can add the string "4" to a numerical value, but you can't add "four."

Working with Arrays

Arrays are collections that have the System.Object[] type. The [] after the data type lets you know that it's an array with multiple values. PowerShell automatically assigns the Object[] type to arrays. For instance, the code

```
$a = "a","b","c"; $a
```

creates an array with three string values, then returns the results

```
a
b
c
```

You use an array's index number to access the individual values in the array. Arrays use a 0-based index, so to access the first value, you specify the array's name followed by the index number in brackets, as in

```
$a[0]
```

Learning Path

WINDOWS IT PRO RESOURCES

To read the previous lessons in the PowerShell 201 series, go to

"Iterating Through Collections with PowerShell's foreach Loops," InstantDoc ID 99873

"Controlling Your Code's Flow with PowerShell's Conditional Statements," InstantDoc ID 100141

"Test for Numerous Conditions with PowerShell's switch Statement," InstantDoc ID 100411

This statement returns the result *a*. If you want to access more than one value, you just include as many statements as you need. For example, the statements

```
$a[1]; $a[2]
```

return the results

```
b
c
```

You can use the plus operator to add a value to an array. For instance, the code

```
$a = $a + "d"; $a
```

adds *d* to the \$a array, then displays the results

```
a
b
c
d
```

When *d* is added to the array, PowerShell assigns the next available index number (3) to that value.

You can assign numerical values to an array as easily as you assign string values. For example, the command

```
$a = 1,2,3; $a
```

returns the results

```
1
2
3
```

Once again, PowerShell assigns the Object[] type to the array.

You can include any type of numerical value in an array. For example, the following code assigns an integer value (1) and two decimal values (2.2 and 3.33) to \$a:

```
$a = 1,2.2,3.33; $a
```

In fact, you can add any type of value to an

```

Windows PowerShell
PS C:\> $a = 10, "cat", (Get-Date); $a
10
cat

Wednesday, June 11, 2008 5:11:03 PM

PS C:\> $a.GetType().FullName
System.Object[]
PS C:\>
PS C:\> $a[0].GetType().FullName
System.Int32
PS C:\> $a[1].GetType().FullName
System.String
PS C:\> $a[2].GetType().FullName
System.DateTime
PS C:\>
PS C:\> $a[2] = "dog"; $a
10
cat
dog
PS C:\> $a[2].GetType().FullName
System.String
PS C:\>
PS C:\>

```

Figure 3: Combining values with different data types in an array

```

Windows PowerShell
PS C:\> $a = @{"b"="bird"; c="cat"; d="dog"}
PS C:\> $a

Name                Value
-----
b                    bird
d                    dog
c                    cat

PS C:\> $a.GetType().FullName
System.Collections.Hashtable
PS C:\>
PS C:\> $a.Keys | sort
b
c
d
PS C:\>
PS C:\> $a.Values | sort
bird
cat
dog
PS C:\>
PS C:\> $a.b
bird
PS C:\>

```

Figure 4: Creating a hash table and retrieving its keys and values

```

Windows PowerShell
PS C:\> $a = @{"b"="bird"; c="cat"; d="dog"}
PS C:\> $a.e = "elephant"; $a

Name                Value
-----
e                    elephant
b                    bird
d                    dog
c                    cat

```

Figure 5: Adding a key/value pair to a hash table

array. For instance, the following code creates an array that includes a numerical value (10), a string value ("cat"), and a date-time value (the current date and time, which is obtained with the `Get-Date` cmdlet):

```
$a = 10, "cat", (Get-Date); $a
$a.GetType().FullName
```

As Figure 3 shows, the array type is `Object[]`. However, the data types of the individual values remain specific to those values. You

can return the individual values' types with statements such as

```
$a[0].GetType().FullName
$a[1].GetType().FullName
$a[2].GetType().FullName
```

Each statement uses the index number to identify the value, then uses `GetType` to retrieve the value's type. Figure 3 shows the results.

To change a value in an array, you specify the value's index number and assign the new value, as in

```
$a[2] = "dog"; $a
$a[2].GetType().FullName
```

PowerShell replaces the value and assigns the correct type to that value, as shown in Figure 3.

Working with Hash Tables

Hash tables are collections that take the `System.Collections.Hashtable` data type. The primary difference between hash tables and arrays is that hash tables use named keys rather than index numbers to identify values. For example, the following code assigns three keys and their values to the `$a` hash table, then displays that table's contents and data type:

```
$a = @{"b"="bird"; c="cat";
d="dog"}
$a
$a.GetType().FullName
```

As the first line shows, you create a hash table by using the `@` symbol followed by a set of braces that enclose the collection of key/value pairs. The first key/value pair is `b/bird`, as Figure 4 shows.

You can retrieve a list of the keys in a hash table by using the `Keys` property. For example, the statement

```
$a.Keys | sort
```

retrieves the `$a` hash table's keys, then uses the `Sort-Object` cmdlet (referenced with the `sort` alias) to sort the keys alphabetically. Similarly, you can use the `Values` property

to retrieve a hash table's values, as this statement shows:

```
$a.Values | sort
```

You can also retrieve an individual value by referencing the key, with a statement such as

```
$a.b
```

Figure 4 shows the results of these last three statements.

To add a key/value pair to a hash table, you can reference the new key as you would an existing key, then provide the new key's value, as in

```
$a = @{"b"="bird"; c="cat"; d="dog"}
$a.e = "elephant"; $a
```

As Figure 5 shows, the key/value pair of `e/elephant` is added.

PowerShell does most of the work when it comes to assigning and converting data types, but you can override this behavior.

To change the value of an existing key, you reference the key and provide the new value, as in

```
$a = @{"b"="bird"; c="cat"; d="dog"}; $a
$a.d = "dingo"; $a
```

This code changes the `d/dog` pair to `d/dingo`.

To remove a key/value pair, you use the `Remove` method. For example, to remove the `d/dingo` pair, you'd use code such as

```
$a.remove("d"); $a
```

Casting and Converting Data Types

At times, you might want to control the data type assigned to a scalar (i.e., single) value. For example, suppose you need to make sure the value 10 is treated as a numerical value and not a string. You can use the fol-

POWERSHELL'S DATA TYPES

lowing code to create a variable that holds a Double-type value, even though the initial value is a string:

```
$a = [double] "10"
$a.GetType().FullName
```

Notice that you specify the Double type before the value. As Figure 6 shows, you can achieve the same results with the code

```
[double] $b = "10"
$a.GetType().FullName
```

However, there's a difference between the two approaches. The first approach simply changes the value to the Double type. The second approach *strongly types the variable*, which means you can assign only values with the same data type to that variable. You can test this difference by trying to assign a string to the \$a and \$b variables:

```
$a = "ten"; $a
$b = "ten"
```

As Figure 6 shows, you can assign a string to \$a but not to \$b.

You can also control the data type assigned to an array. For example, the code

```
$c = [double[]] ("1","2","3")
$c.GetType().FullName
```

assigns the Double[] type to the \$c array,

overriding the default Object[] type. The [] denotes it's still an array with multiple values. As Figure 7 shows, the following code achieves the same results:

```
[double[]] $d =
    ("1","2","3")
$d.GetType().FullName
```

Unlike scalar values, arrays are strongly typed by both approaches. For example, if you try to change one of the values to a string with the statements

```
$c[2] = "ten"
$d[2] = "ten"
```

the statements will fail (see Figure 7).

There might be times when you need to convert an existing variable's data type. For instance, suppose you need to convert a date-time variable to a string variable. You can use code such as

```
$e = Get-Date
$e.GetType().FullName
$e = [string] $e
$e.GetType().FullName
```

In this code, the \$e variable initially contains the value returned by the Get-Date cmdlet. The code then converts the variable to the String type and reassigns the value back to the variable. As Figure 8 shows, PowerShell changed the variable to the String type.



```
Windows PowerShell
PS C:\> $e = Get-Date
PS C:\> $e.GetType().FullName
System.DateTime
PS C:\> $e = [string] $e
PS C:\> $e.GetType().FullName
System.String
PS C:\>
PS C:\> $f = [double[]] ("1","2","3")
PS C:\> $f.GetType().FullName
System.Double[]
PS C:\> $f = [string[]] $f
PS C:\> $f.GetType().FullName
System.String[]
PS C:\>
PS C:\>
```

Figure 8: Converting data types for scalar values and arrays

You can take a similar approach with an array. The following code creates a Double[]-type array, converts the array to the String[] type, and reassigns the values back to the array:

```
$f = [double[]] ("1","2","3")
$f.GetType().FullName
$f = [string[]] $f
$f.GetType().FullName
```

As you can see in Figure 8, the variable's data type is now String[].

Even if an array's values are different data types, you can convert them all to one type with code such as

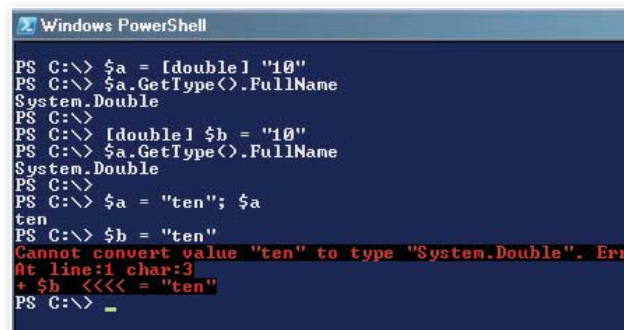
```
$g = 10, "ten", (Get-Date)
$g = [string[]] $g
```

When you convert the array's data type to String[], PowerShell converts all the values to strings.

Let PowerShell Do the Work—Or Not

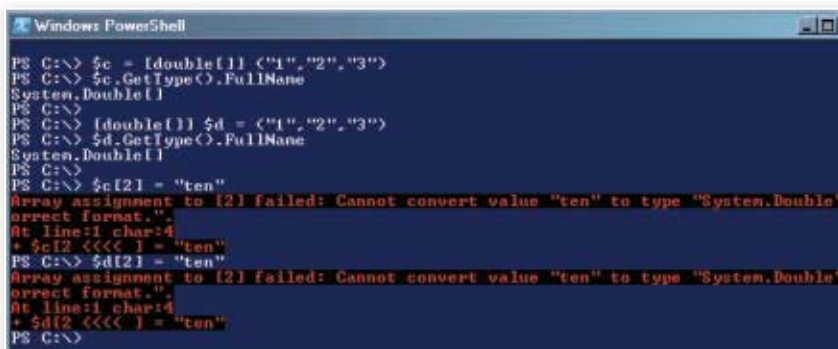
As you've seen in this lesson, PowerShell does most of the work when it comes to assigning and converting data types. However, you can cast and convert data to override this behavior in order to create statements that can better use the available data.

InstantDoc ID 101150



```
Windows PowerShell
PS C:\> $a = [double] "10"
PS C:\> $a.GetType().FullName
System.Double
PS C:\>
PS C:\> [double] $b = "10"
PS C:\> $a.GetType().FullName
System.Double
PS C:\>
PS C:\> $a = "ten"; $a
ten
PS C:\> $b = "ten"
Cannot convert value "ten" to type "System.Double". Error
At line:1 char:3
+ $b <<< = "ten"
PS C:\> _
```

Figure 6: Casting data types for scalar values



```
Windows PowerShell
PS C:\> $c = [double[]] ("1","2","3")
PS C:\> $c.GetType().FullName
System.Double[]
PS C:\>
PS C:\> [double[]] $d = ("1","2","3")
PS C:\> $d.GetType().FullName
System.Double[]
PS C:\>
PS C:\> $c[2] = "ten"
Array assignment to [2] failed: Cannot convert value "ten" to type "System.Double"
correct format."
At line:1 char:4
+ $c[2] <<< ] = "ten"
PS C:\> $d[2] = "ten"
Array assignment to [2] failed: Cannot convert value "ten" to type "System.Double"
correct format."
At line:1 char:4
+ $d[2] <<< ] = "ten"
PS C:\>
```

Figure 7: Casting data types for arrays



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Publishing Microsoft Office Links from SharePoint

Learn the gritty details of how links from Microsoft Office SharePoint Server 2007 find their way into Office 2007

by Kevin Laahs

Both Windows SharePoint Services (WSS) 3.0 and Microsoft Office SharePoint Server (MOSS) 2007 have many integration points with Microsoft Office 2007. For example, Microsoft Office Outlook 2007 can synchronize lists for read/write access and Microsoft Office Word 2007 can edit offline documents. As SharePoint use grows, end users find themselves with many sites, libraries, and lists, and keeping tabs on all of them becomes a chore. It's possible to manually create links in My Network Places to SharePoint sites, but maintaining these Network Places is so time consuming it eventually defeats the original intention of making it easy to locate the sites you most commonly work in.

MOSS, in conjunction with Office 2007 applications, helps ease this pain by automatically maintaining links to various sites and libraries. These links surface in different locations and serve multiple purposes. Some links appear in the Open and Save dialog boxes,

some surface in Outlook for automatic synchronization and offline editing of your personal documents, and others help display a user's public My Site page. By learning how MOSS maintains links and how they find their way into Office applications, you'll provide your users the most bang for their buck and be able to fix things if they go awry.

MOSS and My SharePoint Sites

Publishing links into Office applications is closely related to the My Site features in MOSS, so the information in this article doesn't apply to a WSS implementation. You manage MOSS mostly through the Shared Services Administration site.

One of the core pieces of the SharePoint integration jigsaw is MOSS's ability to maintain a list of all the SharePoint sites to which you have access. More specifically, MOSS can list all sites to which you've been granted explicit access through the Members

group. MOSS maintains knowledge of the members of team sites and presents this information through a user's My Site, as shown in Figure 1. Membership information surfaces in multiple places: SharePoint Sites on your private page, documents and memberships on your public page, and the My SharePoint Sites section of My Links, which

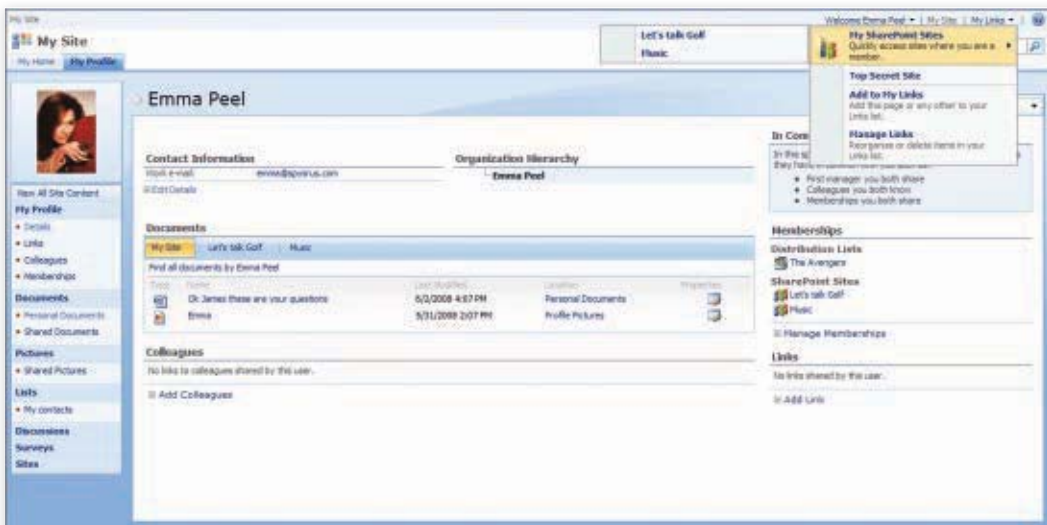


Figure 1: Membership information on a My Site

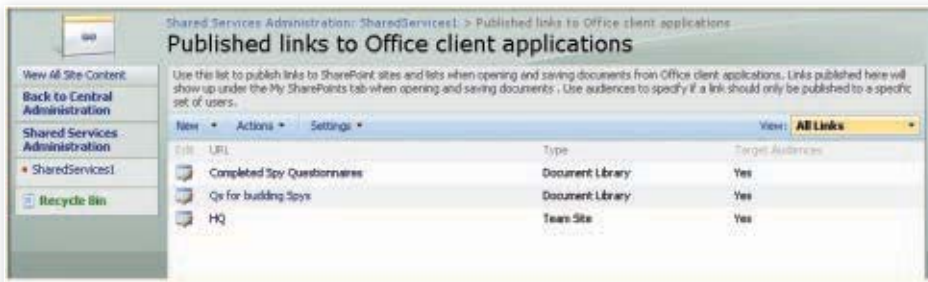


Figure 2: Publishing links to Office applications

appears on all SharePoint sites if you've enabled it. This membership information gives you one-click access to the team sites that are important to you and lets others who view your public profile see which sites you are both members of.

When your Active Directory (AD) account has been explicitly added to the SharePoint group that represents the members of a particular site, that site appears in all these places. The site Members group gives members the right to contribute to the site. By default, this SharePoint group is called "site-name Members." It's not commonly known, but you can override this default and designate any group within the site to be the members group. Anyone with owner access can do so via Site Actions/ Site Settings/People and Groups/Settings/Set Up Groups.

The requirement that you be a member of a site's Members group for that site to show in your My SharePoint Sites list is important, because there are many other ways users can be granted contributor access to a SharePoint site. For example, owners of team sites have contributor access but don't appear in the Members group, so those team sites don't appear in the owners' My SharePoint Sites lists. In such cases, you might want to add owners explicitly to the Members group. Another example is a security group that you add to the Members group. Although members of the security

group are members of the team site, the team site won't appear in the My SharePoint Sites lists of members of the security group.

The My SharePoint Sites list requires your account to have an entry in the SharePoint user profile and be maintained by a background profile synchronization task, which runs hourly by default. You can change the frequency of this task using the sync opera-

way into the Open and Save dialog boxes along with those from your My SharePoint Sites list. Targeting a link to users and groups that have access to the team site gives new site users a great way to navigate to libraries within a site by using the Open and Save dialog boxes in Office applications.

You maintain the list of published links by using the *Published links to Office client*

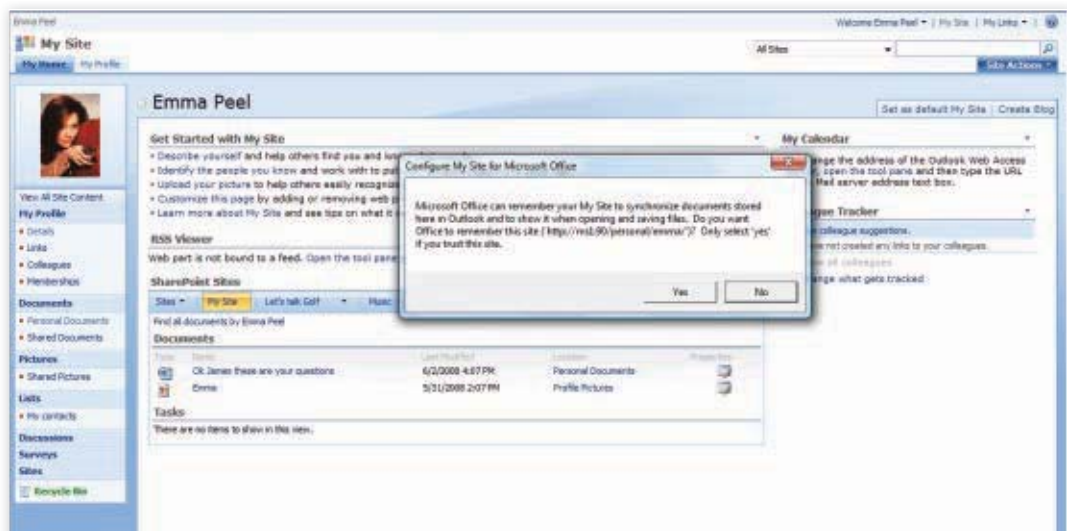


Figure 3: Setting default My Site

tion of the Stsadm command-line utility (stsadm.exe). To change the frequency to every 5 minutes, use the command

```
Stsadm -o sync -syncntiming
"every 5 minutes between 0 and 59"
```

Note that it isn't necessary to create a My Site for My SharePoint Sites to appear in the My Links part of any SharePoint page, but as you'll see, you must create a My Site to have links published to Office applications. The My SharePoint Sites links are stored in the Shared Services database in a table called UserMemberships, and any links you manually create via your My Links are stored in the table called UserLinks.

MOSS—Publishing Links to Office Applications

You can configure MOSS to publish explicit links to sites and libraries, in addition to having it maintain the list of My SharePoint Sites. You can target these links to audiences, AD distribution and security groups, or anyone who has access to the site the link points to. The links that you publish here ultimately find their

way into the Open and Save dialog boxes along with those from your My SharePoint Sites list. Targeting a link to users and groups that have access to the team site gives new site users a great way to navigate to libraries within a site by using the Open and Save dialog boxes in Office applications.

You maintain the list of published links by using the *Published links to Office client*

applications option from Shared Services Administration, as shown in Figure 2. The list of links specified here is stored in the SharedListSync table in the Shared Services database. When you create a link in this list, you can specify whether the link is for all users or for targeted users by specifying audiences, AD groups, or members of the team site to which the link relates.

Connecting Office to SharePoint via My Site

The connection between Office applications and the links that SharePoint maintains is initiated from the user's My Site. When the user visits My Site, SharePoint checks

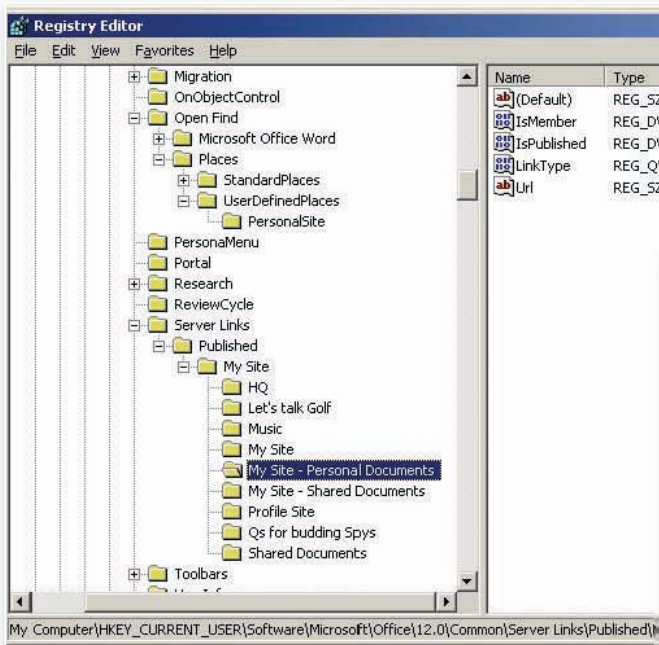


Figure 4: Links written to registry

whether a current connection exists to any My Site and, if it does, whether the connection is to the same site the user is currently viewing. SharePoint makes this determination by interrogating the local registry using the PortalConnect12.PersonalSite.1 or PortalConnect.PersonalSite.1 ActiveX control, which is installed with Office 2007 and Office 2003, respectively.

The registry subkey that's interrogated for Windows XP is HKEY_CURRENT_USER\Software\Microsoft\Office\12.0\Common\Portal\PersonalSiteURL. If the subkey value is missing or doesn't point to the site you're viewing, you're given the option to make the site your default My Site. Setting the default site brings up a dialog informing you that Office can remember your My Site in order to interact with it from Outlook and when opening and saving files, as shown in Figure 3. If you continue, the registry subkey value is set to your My Site URL. This URL then acts as the conduit through which your My SharePoint Sites are populated for Office application use, as I explain a little later.

SharePoint creates another registry value at HKEY_CURRENT_USER\Software\Microsoft\Office\12.0\Common\Open Find\Places\UserDefinedPlaces\Personal Site\Path to show the My Site location in the Open and Save dialog boxes of Office applications. When you bring up the Open or Save dialog box in any Office 2007 appli-

cation or right-click a recipient in Outlook 2007 to bring up the Persona menu, the application determines whether a connection to My Site has been established. The application looks for the PersonalSiteURL value in the HKEY_CURRENT_USER\Software\Microsoft\Office\12.0\Common\Portal\ registry subkey. When this value exists, the application looks in the same subkey for a value called LinkPublishingTimeStamp. This value determines whether Office will ask SharePoint for an updated list of links. Office updates its links once a day, but you can force it to update by removing the LinkPublishingTimeStamp value.

When an Office application's links need to be updated, the application calls the PublishedLinksService web service's GetLinks method, which stores the updated links in the registry subkey HKEY_CURRENT_USER\Software\Microsoft\Office\12.0\Common\Server Links\Published\My Site, as shown in Figure 4. Each value in this subkey represents a link of some sort, and how the value is used depends on the LinkType value associated with the key. The key in Figure 4 will find its way into Outlook for synchronization using the stssync protocol. The Profile Site link subkey, also visible in Figure 4, triggers the View My Site option

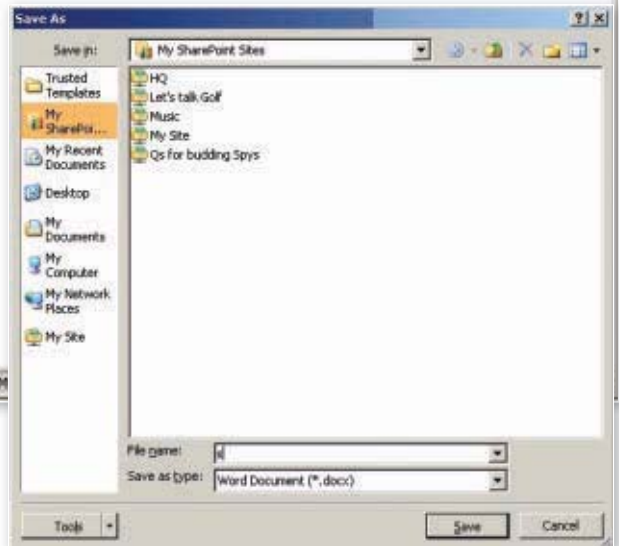


Figure 5: File Open/Save links

in the Persona menu. Links for Open and Save dialog boxes are created on disk at *Windows_profile\Local Settings\Application Data\Microsoft\Office\My SharePoint Sites* and subsequently displayed in the dialog boxes, as shown in Figure 5.

Making SharePoint More Valuable

It might not be immediately apparent to end users, but Office and SharePoint have some neat integration points. By understanding and using these integration points when implementing SharePoint, you'll draw the best experience and maximum value from your investment in this technology. Putting thought into areas such as how best to grant access rights to team sites can increase the usefulness of Office applications in conjunction with SharePoint.

InstantDoc ID 101211



Kevin Laahs

(kevin.laahs@hp.com) is a distinguished technologist at HP. He's coauthor of three books on SharePoint; the latest is *Microsoft SharePoint 2007 Technologies: Planning, Design, and Implementation* (Digital Press).

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PRODUCT SPOTLIGHT



Bomgar Adds BlackBerry Help Desk Support

As mobile devices continue to gain traction, they are being treated with many of the same benefits and concerns of computers. Bomgar has added support for BlackBerry mobile devices to its centralized Help desk platform. Bomgar's solution also supports Windows, Mac, Linux, and smartphone OSs.

Bomgar also announced added support and integration with HP Service Manager, as well as a "Bomgar Button" that enables a user in trouble to click an icon on the desktop and be instantly connected to the Help desk. "We can reach out over the Internet and fix a system," says CEO and founder Joel Bomgar. "A user doesn't have to figure out what number to call or what website to go to."

Nathan McNeill, vice president of product strategy, cites a Verizon Business research report that found that organizations are four to five times more likely to be hacked through remote control solutions than through wireless networks. Other remote control solutions, such as Software as a Service solutions, "introduce huge security and ownership hurdles. A vendor is storing your sensitive data. With an appliance, you host internally; data isn't routed through other vendors."

"Enterprises are facing the need to reference and report on an incident. We added the ability to integrate with HP," says McNeill. "Basically you can have one incident that tracks across Bomgar and across HP." Bomgar has also enhanced the manageability of its product and added the ability to customize public portals, helpful for organizations needing to support multiple customers or products. To learn more, call 601-519-0123 or visit www.bomgar.com.

■ File Transfer ■ Email

High-Speed File Transfer

TCP is a chatty protocol, and when you're sending large data files across the Internet, it can get downright garrulous: Whenever a packet is dropped, all the data has to be re-sent. Two network engineers created a new application-layer protocol, **fasp**, and founded a company, Aspera, to combat this problem. Fasp doesn't require re-sending all the data—it sends only what's needed. Aspera also offers **Aspera faspex Server 1.5**, a digital package delivery system that enables users to send huge amounts of data to multiple groups, and a management console called Aspera Console that helps admins remotely manage Aspera servers and clients. To learn more, call 510-849-2386 or visit www.asperasoft.com.



Complete Messaging and Collaboration Solution

Intermedia's **Business Productivity Suite** (BPS) provides a hosted, bundled set of Microsoft messaging products for small- to midsized businesses. BPS includes Microsoft Exchange Server 2007, Windows SharePoint Services, Microsoft Office Communications Server 2007, Microsoft Office Outlook 2007, and Microsoft Entourage 2008, all with the full array of capabilities.



Jeff James | jjames@windowsitpro.com

Editor's Note: Send new product announcements to products@windowsitpro.com.

■ Group Policy ■ Archiving

Additional services include BlackBerry and iPhone synchronization, Good Mobile Messaging for additional mobile device support, and Secure Mail to send encrypted messages. BPS is available on a monthly contract priced at \$15/user. To learn more, call 800-379-7729 or visit www.intermedia.net.

Free Tool Shows Group Policy Processing Status

SDM Software has released **Group Policy Health**, a free Windows PowerShell cmdlet that lets you check the status of Group Policy processing on remote systems. The product shows Group Policy processing status at a glance using a red-green color scheme—red means an error was returned, and green means processing succeeded. It works on a single machine, all machines in an organizational unit (OU), or all machines in your domain and comes with a Help file explaining how to use it. To download the cmdlet, visit www.sdmsoftware.com.

Better Email Archiving Through Easier Content Tagging

Based on the concept that "not all email is equal," Mimosa Systems has added a new module to

its **NearPoint for Microsoft Exchange Server** product: the NearPoint Retention and Classification Option. RCO aims to help lower storage costs and facilitate e-discovery by letting you set policies to archive only certain items. You can also specify the length of time that different classes of messages will be retained and set policies for already-archived content. For more information, email info@mimosasystems.com or visit www.mimosasystems.com.

Palm Treo Pro

Read the full-length review at www.windowssitpro.com, InstantDoc ID 101199.

Palm has released the **Palm Treo Pro**, a sleek, modern smartphone that's blessed with a smart, attractive design and loaded with features, such as Wi-Fi support, GPS, a 2-megapixel camera, and the ability to serve

as a high-speed modem for a laptop. The Treo Pro features a thin, rounded-edge design that's easy on the eye and cool to the touch. The LCD screen is bright and clear, the keyboard buttons are easy to use, and all the other buttons and switches have smooth, beveled edges.

Battery life was generally good during testing, lasting 6-8 active hours on a full charge.

The 1500 mAh lithium-ion battery fully recharged in just a few hours, but the Treo Pro's AC adapter and USB connector were a bit flimsy and insubstantial for a phone that costs more than \$500.

All of that attractive hardware is powered by Windows Mobile 6.1 Professional, the latest version of Microsoft's mobile device OS. Windows Mobile 6.1 Professional is a significant improvement over earlier versions of Windows Mobile and much easier to use. However, Windows Mobile isn't the strongest selling point of the Treo Pro. Compared with the iPhone and the T-Mobile G1 mobile OS, which are designed from the ground up for mobile users and oriented around touchscreens and fingertip use, Windows Mobile seems archaic, with all the aforementioned Windows design elements relatively ill-suited for a mobile device.

Usability gripes aside, the ease with which the Treo Pro can be integrated into an existing Windows Server-based IT environment is a strong selling point. Pocket Outlook

is the default email client, and pocket versions of Microsoft Excel, Word, and PowerPoint make it easy to edit Microsoft Office documents on the go.

Microsoft ActiveSync is preinstalled on the device and makes it easy for administrators to integrate the device with their Exchange environment. Windows Mobile 6.1 also introduces support for Microsoft System Center Mobile Device Manager 2008, which lets administrators perform mobile management tasks such as instant remote wipe of lost devices, and has an improved mobile device inventory. Mobile Device Manager is a compelling product integration solution for IT administrators who have invested heavily in Microsoft System Center products and truly extends the usefulness of the device from a management perspective.

Despite my griping to the contrary, Windows Mobile isn't a bad smartphone OS; in some ways—particularly with its strong Exchange integration—it's clearly a superior solution for the enterprise. But in terms of its usability and capabilities, Windows Mobile (and Microsoft) has a lot of catching up to do to become a market leader. Heavy users of Exchange in the enterprise can't go wrong with the Treo Pro, but less corporate-minded users will likely want to look elsewhere for their mobile device needs.

InstantDoc ID 101199

Palm Treo Pro

PROS: Loaded with cutting-edge features; rock-solid integration with Microsoft Exchange; sleek, slim hardware design

CONS: Windows Mobile 6.1 can't match the superior mobile OS offerings available via the iPhone, BlackBerry Storm, and T-Mobile G1; flimsy USB power cable and AC adapter

RATING: ◆◆◆◆◆

PRICE: \$549

RECOMMENDATION: If you're looking for a Windows Mobile-based smartphone, the Palm Treo Pro is an excellent choice. Windows Mobile 6.1 excels at enterprise integration, but flashier smartphone alternatives might fit the bill for less demanding email interoperability needs.

CONTACT: Palm • 800-881-7256 • www.palm.com

Paul's Picks

www.winsupersite.com

SUMMARIES of in-depth product reviews on Paul Thurrott's SuperSite for Windows

HP MediaSmart Server ex485/ex487

PROS: Improved processor, RAM, and storage capacity; excellent bundled add-ons

CONS: Is still single core; requires two or more drives for best performance

RATING: ◆◆◆◆◆

RECOMMENDATION: HP's MediaSmart Server ex485 and ex487 home servers are truly viable for users of all kinds, with a better processor (Intel Celeron), dramatically more RAM (2GB, up from 512MB), and more storage (750GB in the ex485 and 1.5TB in the ex487) than earlier models. Users can augment MediaSmart Server's Windows Home Server (WHS) capabilities with third-party add-ons, including Server Online Backup, which backs up data to Amazon's S3 cloud storage system, and HP Media Collector, which aggregates digital music, photos, and videos from connected PCs. If you're looking for a stylish and well-made WHS solution, this is likely your best bet.

CONTACT: HP • www.hp.com

DISCUSSION: www.winsupersite.com/server/whs_hp_2009.asp

Windows Live Essentials

PROS: Diverse group of applications; excellent cross-app and cloud-based integration

CONS: Email application gets bogged down on email-heavy servers; buggy Messenger application; MovieMaker incomplete

RATING: ◆◆◆◆◆

RECOMMENDATION: Microsoft moved Windows Live Mail, Messenger, Movie Maker, and other apps out of Windows and into a free, downloadable suite called Windows Live Essentials. The suite includes a new Windows Live Toolbar for Microsoft Internet Explorer, a surprisingly excellent blog editor called Writer, and other utilities. Because these apps are no longer bundled in Windows, they can be updated more frequently and, for businesses, ignored as needed. Movie Maker remains in beta at press time, but Microsoft says it's committed to regular updates. I like what I see so far.

CONTACT: Microsoft • 800-426-9400 • www.microsoft.com

DISCUSSION: www.winsupersite.com/live/wlwave3_explained_03.asp

InstantDoc ID 107267



Jeff James | jjames@windowssitpro.com
Paul Thurrott | thurrott@windowssitpro.com

Lansweeper

Read the full-length review at www.windowssitpro.com, InstantDoc ID 101219.

Lansweeper is an automated inventory, reporting, and PC administration tool. It can quickly give you complete reports on your company's server hardware and installed software, as well as an overview of problem areas, such as unauthorized administrators or almost-full hard disks. Lansweeper has rich reporting and license-compliance tools and is a terrific gateway for troubleshooting.

Installation is straightforward, but a little preparation pays off. Because your technicians will use a web page for most administrative tasks, you'll need to install Microsoft Internet Information Services on the server, then download and install .NET Framework 2.0 and install and configure a back-end database to which Lansweeper can store network information. The database can be SQL Server 2000 or later or the free SQL Server Express Edition.

An installation wizard walks you through the rest of the setup process, including connecting to the back-end database, setting up an NT service that can scan the machines on the network, and configuring an administration website. After Lansweeper scans just one PC, you can start viewing the reports through a web browser.

The *Digital dashboard* lets you jump to software, hardware, server, general, and license-compliance reports. The overview page—which contains *High priority*, *Important*, and *Informational* sections—helps direct your attention to problems you need to address. An *Action screen* provides an overview of a specific, inventoried computer, but it also lets you perform basic troubleshooting steps called Custom Actions. Some of the built-in custom actions are *Remote control*, *Event viewer*, *Ping*, *Trace-route*, *Delete old user profiles*, *Show open files*, and *Who's logged on*. Some Lansweeper customers have written their own custom

actions and shared them with other users on the company's online forum.

Lansweeper is inexpensive, and it just works. While testing it, I tried to root out deficiencies in the software or in usability, but found none. I recommend Lansweeper without reservation. Download the free version, and see if you agree.

InstantDoc ID 101219

Lansweeper

PROS: Includes useful troubleshooting tools for Help desk personnel; inexpensive price points put the product in reach of even the most budget-restricted administrator; Premium edition allows unlimited computers and administrators

CONS: None

RATING: 

PRICE: Free basic version; \$150 for Premium edition

RECOMMENDATION: Highly recommended for budget-conscious companies looking for a feature-rich inventory and troubleshooting tool.

CONTACT: Lansweeper • www.lansweeper.com

Parallels Virtuozzo Containers

Read the full-length review at www.windowssitpro.com, InstantDoc ID 101183.

Unlike VMware's ESX Server or Microsoft's Hyper-V, which virtualize the hardware level, **Parallels Virtuozzo Containers 4.0** virtualizes at the OS level. OS virtualization offers lower overhead: All *containers* (Parallels' term for virtual machines) share the same OS level, so there's no need for an extra level of hardware virtualization. However, all containers must use the same OS—different containers can't run different OSs or have different hardware configurations.

Parallels Virtuozzo Containers 4.0 for Windows can run on all the processor architectures: x86, x64, and IA-64. On the software side, the product requires Windows Server 2003. Containers is compatible with Windows Server 2003 Standard, Enterprise, and Datacenter editions with SP1 or higher for both the x86 and x64 architectures. Notably, Containers 4.0 does not support Windows Server 2008.

Installation was lengthy, requiring mul-

tiples downloads and switching between the Windows 2003 installation media and SP1 media. But using the Parallels Management Console (PMC) to create new containers was quick and easy. Because each container is a virtual OS, you can configure all the important OS properties when you create the container. You can create multiple containers at one time, and containers are ready to go as soon as they're created.

Containers' use of templates sets it apart from other virtualization solutions and is a huge productivity boost. Application templates make the associated applications available in the container immediately after the container is created.

Container performance was very good. Running five active containers didn't seem to tax the system at all, and response time in all the containers was very close to response time on a native physical system.

Help for the product is HTML-based and well organized, but a bit too superficial to be truly helpful. For example, the Managing Templates section had no information that I could find on how to create an application template.

Parallels Virtuozzo Containers is an excellent virtualization solution and an especially good choice for hosting providers.

InstantDoc ID 101183

Parallels Virtuozzo Containers

PROS: Excellent performance; intuitive management console; quick deployment via templates

CONS: Limited OS support; outdated application template; superficial help

RATING: 

PRICE: \$1,500 per processor plus 25 percent annual maintenance and support

RECOMMENDATION: Highly recommended, especially for hosting providers and business that need to rapidly deploy new virtual servers.

CONTACT: Parallels • 425-282-6400 • www.parallels.com



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ADD-ONS

Extend Ops Manager's reach

by Anne Grubb

[Editor's Note: For a somewhat longer and more detailed version of this article, go to www.windowsitpro.com and enter 101301 in the InstantDoc ID text box at the top of the page.]

Dozens of management packs available from Microsoft and other vendors extend the base functionality of Microsoft Systems Center Operations Manager 2007. Third-party vendors have further extended Ops Manager's capabilities through an assortment of add-on solutions. The buyer's guide table (which is online at www.windowsitpro.com, InstantDoc ID 101301) focuses on third-party management packs and add-on software for midsized and enterprise Ops Manager environments.

Management Packs and Add-ons

The base Ops Manager product provides a comprehensive range of monitoring and reporting services. Management packs extend Ops Manager to enable it to monitor specific enterprise applications. Add-ons fill in the functionality gaps not covered by management packs.

One type of add-on provides niche enhancements that add specific functionality, such as monitoring compliance or generating Microsoft Office Visio diagrams that let administrators view Ops Manager information in the context of their business processes. Another type, typically called a *connector*, integrates Ops Manager with another monitoring application, such as the EMC Smarts monitoring system or the Zenprise Exchange and BlackBerry monitoring systems.

Trends in Ops Manager Solutions

Management packs for Ops Manager and its predecessor, Microsoft Operations Manager, have traditionally focused on extending the base management solution to monitor "big ticket" applications, such as Microsoft Exchange Server 2007, DNS, Microsoft SQL Server, and Citrix Systems applications. But one recent trend in Ops Manager management packs is support for interoperability, as evidenced by Microsoft and Novell's announcement at the Microsoft Management Summit 2008 last May of their agreement to extend Ops Manager to monitor Linux and UNIX.

Another notable recent trend in System Center add-on products is root cause analysis (RCA)—essentially identifying and eliminating the underlying cause of a system problem, rather than flagging and responding to symptoms of the problem. Microsoft took a step toward strengthening Ops Manager's RCA capability when it licensed

EMC's Smarts technology in March 2007 with the eventual goal of building EMC Smarts network-monitoring and RCA technologies into a future version of Ops Manager. The Zenprise and EMC Smarts connectors both give Ops Manager access to RCA information.

Features to Look For

Whether you're considering purchasing a management pack or an add-on point solution, the first question you'll want answered is what OSs and applications the product works with. If your environment includes a mix of Windows and non-Windows systems, make sure the solution supports all the platforms you want to monitor.

The next key consideration is the type of monitoring and alerting the product performs and the metrics it provides. Most Ops Manager add-ons monitor Windows Management Instrumentation and the Windows event logs, typically in near real time. Look for solutions that provide both monitoring and alerting. Management packs and some add-on products typically provide application-specific measurements, such as performance, number of users, network connectivity, and transactions per second. Some solutions also provide mean time between failures (MTBF) and mean time to failure (MTTF) statistics. Products oriented toward compliance monitoring might report data such as security configuration or audit settings.

Some administrators will want to know whether the product requires installing additional agents beyond those that Ops Manager uses. You might not be able to avoid the overhead of running additional agents.

You'll also want to look at the solution's support for regulatory and data-retention compliance. For example, does the product provide some type of monitoring for compliance and generate alerts to ensure compliance, such as ensuring that certain data is archived?

Extending Ops Manager

Third-party management packs and add-on solutions provide a myriad of options for extending Ops Manager's already considerable monitoring and reporting faculties. When evaluating products, first determine the scope of the solution you need, whether it's comprehensive application or platform monitoring or a particular enhancement to Ops Manager. Then use the solutions and features listed in the buyer's guide table to zero in on the right add-on product. 

InstantDoc ID 101301

ANNE GRUBB (agrubb@windowsitpro.com) is website strategic editor for *Windows IT Pro* and *SQL Server Magazine*.

■ Cloud Computing

■ Mobile & Wireless

■ SharePoint

INSIGHTS FROM THE INDUSTRY

Sassy SaaS Lingo: When Is the Right Word Right?

How many names can you think of for cloud computing? Take a moment.

Are you ready? Here's what I come up with: Cloud computing. Application service provider (ASP). Managed service provider (MSP). Outsourcing. On-demand. Hosted service. Software as a Service (SaaS). And let's not forget the Microsoft entry on the list, Software Plus Services (S+S).

I'm sure there are other names; feel free to tell me what they are. This plethora of designations is probably due to the fact that the concept has been developing over quite a few years, plus the fact that the idea has really taken off and grown dramatically over the past year or two—an overnight success after a lengthy gestation period. As companies, such as Microsoft, look to put themselves forward in this arena, they come up with terminology they feel will make them stand out from their competitors. That's only natural: It's called marketing.

But if you look at my list again, I think you'd agree that many of these terms have subtle—or not so subtle—variations of meaning. For instance, the term outsourcing might bring up negative connotations—sending jobs overseas to countries such as India. (A side note: When I talk to service providers these days, it's interesting how some of them are highlighting the fact that all their workers are US-based because that could be a factor on which some prospective clients might base a

decision. For instance, I spoke recently with representatives of Movêro Technology, a company that provides complete life cycle management for mobile devices as a hosted service, and one thing that was pointed out to me was that in addition to having support available at any time, all the company support technicians were trained, certified, and based in the United States.)

Other off-center terms from my list: ASP and MSP actually refer to the providers, not the service or concept itself. It's interesting to note that MSP wasn't originally specific

Is there a difference between cloud computing and SaaS?

to IT services, but the term has become more and more so recently.

And then I wonder about the difference between cloud computing and SaaS. Is there a difference? I sense that the terms have slightly different meanings—that cloud computing is larger than SaaS. Perhaps cloud computing encompasses things such as cloud OSs—Windows Azure, Amazon EC2—and applications in the cloud, but SaaS is more specific to application-level hosted services. I'm reminded of a Monty Python bit where John Cleese as

the logician explains that “All of Alma Scoggins is dead, but not all of the class of dead things are Alma Scoggins.” Or something to that effect. So is it the case that all SaaS is cloud computing, but not all cloud computing is SaaS?

While talking about the terminology related to the cloud, here's one on the other side: on-premise vs. on-premises. A simple consult of your dictionary will reveal that a *premise* is an idea and *premises* refers to a location or to real estate (there is no singular form of the word for this meaning). Therefore, if you host your applications yourself, they are on-premises.

However, a simple Google search reveals that the use of on-premise is far and away more common. (Indeed, you'll find this incorrect usage frequently even in our articles on windowsitpro.com—shame on us!) I suppose the incorrect version is more common because people don't realize that the word is only in plural form. Also, it's easier to say.

Or is there another reason? Marketing! As one of my editorial colleagues pointed out, “I like to think we have marketers to blame for such widespread yet obviously incorrect usage, because the alternative seems to be that the IT populace wants to develop its own bastardized form of English.” Of course, there is something to be said for IT creating its own lingo—can you say iSCSI, IOPS, or SaaS for that matter?—but ultimately that's different from simply using a term in an ungrammatical way. Marketers are more interested in sounding good than being right, IMHO.

Here's a final thought: All of our readers are brilliant IT professionals, but not all brilliant IT professionals are among our readers. If you've read this far, give yourself a pat on the back from me.

—B. K. Winstead
InstantDoc ID 101019

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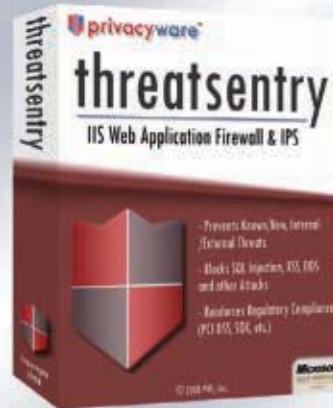
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Mobile Phones Will Be Primary Internet Access Point in 2020

A recent study by the Pew Internet & American Life Project predicts that the mobile phone will be the primary point of Internet access for most tech consumers. The report also forecasts that the line between work life and personal life will continue to blur, as technologies such as touch-screen interfaces and voice recognition will become more prevalent by 2020.

The study surveyed 1,200 tech-savvy participants about what they expected from the future. The respondents predicted that telephony will be offered under a set of universal standards and protocols accepted by most operators internationally, making for reasonably effortless movement from one part of the world to another. For the small-to-mid-sized business (SMB) owner, the results of the survey suggest that a more internationally flexible mobile infrastructure will make international transactions and growth easier, while the prevalence of the web on mobile devices and smartphones (which the survey predicts will have considerable computing power by 2020) will let SMB owners access their business dealings nearly anytime and anywhere.

Moreover, the survey suggests that outside of formally scheduled activities, work and play will be seamlessly integrated in most workers' lives. Pew considers that this potential future would be a net positive for people, as communication flexibility lets them blend personal and professional duties wherever they happen to be when called upon to perform them, be it at home, the gym, the mall, a library, and possibly even their company's communal meeting space, which might exist in a new virtual-reality format. A majority of expert respondents (56 percent) agreed with the statement that in 2020 "few lines (will) divide professional from personal time, and that's OK."

Not everyone who participated agrees, however. "The result may be longer, less efficient working hours and more stressful home life," says participant Victoria Nash, director of graduate studies and policy and research officer, the Oxford Internet Institute.

—Jason Bovberg
InstantDoc ID 101097

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Lotus and SharePoint: Side by Side

Microsoft SharePoint has quickly become the dominant player in the collaboration software market. Microsoft's deep integration of the Office product line makes it a natural collaboration choice for companies that run the Exchange/Office platform. But what about companies that don't use Office, such as those that run Lotus Notes? Should they migrate to the Microsoft products to take advantage of SharePoint's rich collaboration offerings?

According to a recent study by Ferris Research, "One in eight Lotus Notes customers are considering migrating to Outlook and Exchange, but most customers do not follow through because of the high cost and complexity of the project." And according to Rob Koplowitz, principal analyst at Forrester Research: "If you are a Notes user with a significant investment in Notes applications, be careful not to underestimate the cost of recoding those applications for SharePoint—or the disruptive impact on knowledge workers. The cost and risks associated with moving applications to a new platform may outweigh the benefits." He also suggests that the best solution for some companies is to let Notes and SharePoint live side by side.

One company that agrees with the coexistence approach is Mainsoft. In a briefing with the company, I learned about a product that lets you stay with Lotus, yet take advantage of the SharePoint

platform. Mainsoft's SharePoint Integrator for Lotus Notes 1.5 is a client-side plug-in for Notes that lets business users access, modify, and publish email and attachments on SharePoint directly from the Notes environment.

"Given the widespread use of Microsoft Office on the desktop, it's not surprising to see SharePoint emerging in most organizations, including those that use Lotus Notes, Sametime, and Domino," said Yaacov Cohen, president and CEO of Mainsoft. "Notes users are surrounded by SharePoint sites, and they get stuck with limited integration between messaging and collaboration platforms. Teamwork suffers, and managing team records is all but impossible. Mainsoft SharePoint Integrator promotes team collaboration, without enterprise IT having to migrate their messaging platform."

SharePoint Integrator for Lotus Notes combines SharePoint's collaboration and document-sharing capabilities with the email and IM capabilities of Lotus Notes and Sametime, enabling organizations to leverage the promise of both products and achieve the benefits of an integrated collaboration environment without the hassles, cost, or risks of a migration. To learn more, go to www.mainsoft.com.

—Gayle Rodcay
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Some of Our Favorite TECH ACRONYMS

We use acronyms a lot in *Windows IT Pro*. They save time and space. But there are so many in this industry that we sometimes get them wrong, despite our careful web research. Although the following acronyms appear accurate, we've found that their expansions are a little off. We apologize if we've used the following incorrectly.

AMIGA—A Merely Insignificant Game Addiction

APPLE—Arrogance Produces Profit-Losing Entity

BASIC—Bill's Attempt to Seize Industry Control

CD ROM—Consumer Device Rendered Obsolete in Months

COBOL—Completely Obsolete Business Oriented Language

DEC—Do Expect Cuts

DOS—Defunct Operating System

IBM—I Blame Microsoft

ISDN—It Still Does Nothing

LISP—Lots of Infuriating, Silly Parentheses

MACINTOSH—Most Applications Crash; if Not, the OS Hangs

MICROSOFT—Most Intelligent Consumers Realize Our Software Only Fools Teens

MIPS—Meaningless Indication of Processor Speed

OS/2—Obsolete Soon, Too

PCMCIA—People Can't Memorize Computer Industry Acronyms

PENTIUM—Produces Erroneous Numbers Through Incorrect Understanding of Mathematics

PICNIC—Problem in Chair, Not in Computer (e.g., "We have a PICNIC situation")

SCSI—System Can't See It

WINDOWS—Will Install Needless Data on Whole System

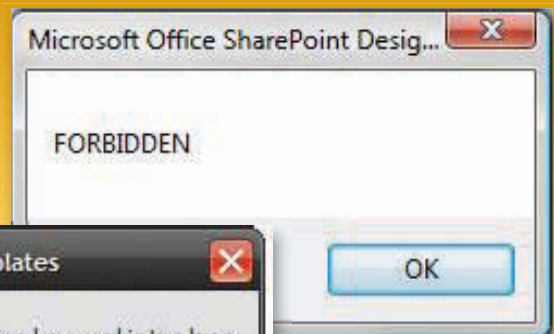
WWW—World Wide Wait

WE NEED YOUR STORIES!

Ever have one of those days when users unintentionally tickle your funny bone? Ever *not* have one of those days? We've published several hilarious end-user moments in this space, and we want to hear some more! In 150 words or fewer, send your greatest, funniest, most embarrassing user experience to rumors@windowsitpro.com, and we might just publish it on this page. We'll even send you a Ctrl+Alt+Del mug!

User Moment of the Month

One day, I got a call from our company president's executive assistant. I had recently installed and configured this user's work-at-home PC. Over the phone, she told me that her brand-new scanner was no longer working. I advised her to reboot—no luck. I walked her through a few more troubleshooting steps—still nothing. So I made the short trip to her home, observed the situation, and recalled Occam's Razor, which states, "All other things being equal, the simplest solution is the best." I calmly reached over and turned on the scanner's power switch to solve the problem. This user is no longer allowing her cat to climb all over the equipment in her home office.



You have 15 seconds to comply

Time to revert to zero-letter keywords

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